

Deaf Students And Spoken Languages

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ABSTRACT

This monograph aims to give an aperçu of the world of deafness and the ways to teach, to people with this impairment, the spoken languages. Some knowledge in anatomy and physiology of the hearing organs, founded in the book of Peter Alberti (1995), will permit a better comprehension of the phenomenon, with its aetiology, and usual solutions when it is possible. The importance of language in the formation of thinking is not neglected and therefore an analysis of the Sign Language is done setting clearly the linguistic principles from Ferdinand de Saussure (1916) to William Stokoe (1960) who applied, the first, linguistics to the American Sign Language. Sociology and psychology of the deaf community is overviewed to understand the relations they can show about the spoken languages. Abbot the l'Épée (1776) is the base about teaching to deaf students and from him this monograph searches to present clearly the situation in which a language teacher will face when deaf students present to his class, as well as some of the special issues he can encounter.

RESUMEN

Esta monografía apunta a permitir al profesor de lenguas habladas comprender el mundo del alumno sordo y las técnicas de base para entrar en su universo y así cumplir su misión. Para lograr esto se mira la anatomía y fisiología del oído siguiendo el libro de Peter Alberti (1995) y de esta forma comprender lo que es la sordera. Igualmente se entrará en la participación del oído en la formación del pensamiento y por lo tanto como influye la sordera en la constitución de una cultura paralela en nuestra sociedad. Las bases para este estudio son las primeras definiciones del pensamiento, que no se encontraron más profundas en autores posteriores a John Locke (1690). Igualmente se analiza los medios de comunicación de los sordos, con su propia lengua, la Lengua de Señas y sus especificaciones. Este análisis utiliza tanto las bases de la lingüística según Ferdinand de Saussure (1916), los primeros estudios de esta lengua que pueden ir desde el Abad de l'Épée (1776) hasta William Stokoe (1960) con su estudio lingüístico del método usual de comunicación de los no oyentes. Para entrar en las aplicaciones pedagógicas, qué implican qué enseñar y con qué medios, se mirarán tanto la sicología del sordo, su simpatía o rechazo del mundo oral y las posibles soluciones que se encuentra actualmente para la enseñanza de los sordos.

Key words: Sign language, chereme, minimal pair, phoneme, dactylological alphabet.

1. PRESENTATION

The scope of this monograph is to furnish an overview of the available literature related to the teaching of spoken languages to the deaf community. It will be centred, when the documentation is available, in teaching spoken languages, including foreign languages to deaf students. Facing the scarcity of the literature about this subject for the Colombian case, this monograph thence, will take into account studies done about foreigner deaf communities.

This monograph will start by giving an idea of what deafness is, its social implications and then how to teach to this community an aural language. After those concepts established, a glance about the methods employed, in Colombia and abroad, to teach to deaf a spoken language, will be done. Even if the authors show a concordance among the social position and opinions of the deaf, the lack of information in the Colombian community is to regret.

It is of the main importance to have clear ideas of the population with whom teachers are going to deal when trying to teach a spoken language to deaf. As this monograph will show, deaf are not only an important part of the society, but they have their own sociological particularities that go farther than their impairment could apparently justify. Next, the reasons of their social isolation, as individuals and as a group, will be mentioned. Just enough to insist in their learning particularities because some of the consequences of their group belonging and specificities are the relations they may have towards the hearing culture and therefore what they will be keen to learn.

It is not possible to leave aside what deaf students are keen to learn, because motivation is the real power to teach a communication system specially if it cannot be perceived by the students. Therefore, it is important to know whether the teacher is going to teach “how to speak” or to restrain his work to the development of the writing and reading skills, in order to get the maximum utility of that motivation. For several authors this motivation is a crucial question and their answers are supported in social and psychological reasons observed in the deaf community.

Nowadays most of the authors affirm that teaching deaf to speak is not a well advised policy and, therefore, this monograph follows those authors who tend for the development of the writing and reading skills only in the literacy of deaf. For that reason it shows the studies done in this direction. Even more, to teach a foreign language to deaf means already to do something that is not more complex than to teach the already dominant local oral language; that is to say that to teach English, or any other language, to deaf is not very different if the students are living in a country where the hearing people speak that language or not. Even more, according to some authors, the fact of learning a new language, increases the language accuracy and vocabulary even in the languages already known by the student. As for the hearing students, deaf will benefit from learning English, or any other new language.

The bibliography has been collected by its precision to explain concepts or the questions and answers that appear when trying to know what is necessary in order to teach a spoken language to deaf. The reader will find that authors who wrote many years before are taken into account because their work is still appropriate and because it is fair to attribute to each author the insights he has found.

2. JUSTIFICATION

Spoken languages present difficulties for deaf people in terms of culture and specific conditions. Aural world cannot be perceived by them, and therefore they elude, the set of social ideas, learned by the hearing sense, that shape the aural culture. The main difficulty to teach them a spoken language comes from the fact that this is not perceived by them. This is why this paper pretends to explore how deaf people approach spoken languages on educational settings. The focus will be, therefore, on the difficulties that could arise due to their particular social structure and specificity, considering that apart from their hearing impairment, they are not mentally disabled. It is pertinent to highlight that they develop their own culture and values, they have their own way to perceive the world, they have another way of communication, that when is used to teach them, they learn as well as a hearing person. Therefore, people of this community are recognised as subjects of law, as any other person in this country.

In Colombia there were registered, in the census for the year 2005, 455 718 deaf people, according to *Departamento Nacional de Estadística*, DANE. From this people, 10.450 in the department of Risaralda. Among them, 781 boys and girls are in school age, i.e. they are from 10 to 19 years old (INSOR, 2015). This population is not only important from a quantitative point of view, but they have rights that are recognised from the constitution of the Colombian Republic. Indeed, article 7 of the Constitution (Constitución Política de Colombia, 1991) declares to protect the cultural diversity in the country. Even more, the article 47 of the same Constitution goes forward when it declares that the State will have an integration policy for the sensorial impaired. In addition to this recognition of the Constitution, the law 982 from 2005 (Congreso de Colombia, 2005), enacts the special

protection measures for the deaf, and the judgement of the Constitutional Court C 605-12 (Corte Constitucional, 2012) recognises the deaf community as one of the cultural groups that define the Colombian country. In light of these arguments, teachers require to know how to instruct this community, within a scholar environment, especially when teaching them spoken languages.

The purpose of this paper is to provide teachers with the information that would guide them to make decisions for the teaching of spoken languages to the deaf. It is undeniable that to read in the national language is important for the literacy for all students, including the deaf. Nevertheless, there are some obstacles that could appear, such as the position of the deaf towards the aural culture, and this work attempts to give an idea of the more commonly found. The contribution of several researchers in the area of languages education will be found in this document to establish the basis for understanding how spoken languages can be taught to deaf people.

3. CONCEPTUAL FRAMEWORK

As far as this monograph is focused on the deaf students, the need to set clear some concepts prevails any further discussion. The first concept, without which any discussion would not be clear, is that deaf are not necessarily mental impaired (Berent, 2001; De l'Épée, 1776; Keating and Hadder, 2010, and many others) and their participation in society, from more than two centuries is recognised as worthy as that of the hearing population (De l'Épée, 1776). So, deaf must be recognised hereupon with the same rights that every other person may have.

Besides that, some definitions are necessary to specify in order to understand the subject of this monograph, and they are:

3.1. Hearing

The Merriam Webster dictionary gives the definition of hearing as: “the process, function, or power of perceiving sound; specifically: the special sense by which noises and tones are received as stimuli.” In its medical definition, this same dictionary says that:

Hearing is the act or power of apprehending sound; specifically: one of the special senses of vertebrates that is concerned with the perception of sound, is mediated through the organ of Corti of the ear in mammals. It is normally sensitive in humans to sound vibrations between 16 and 27,000 hertz but most receptive to those between 2000 and 5000 hertz, and is conducted centrally by the cochlear

branch of the auditory nerve, which is coordinated especially in the medial geniculate body.

Hearing is the sharper sense of the foetus (Charbonniaud, 2012), and it is supposed to hear, and to listen, since the 26th or 28th week. Once the foetus is born, this sense continues to develop, as will be deeper developed in chapter 4.1.

3.2 Hearing loss

According to the World Health Organisation (2015) hearing loss is considered when a person has a hearing threshold under the 25 dB in both ears. Hearing loss is classified in several stages, such as mild, moderate, severe or profound. It can affect one ear or both ears, of course. For Morlet (2016), a hearing impairment occurs when there is a problem with a part of the hearing organs.

Hard of hearing refers to those who can be ranged from mild to severe.

3.3 Deafness

The classification of profound hearing loss corresponds to deaf, always following the World Health Organisation (WHO) (2015), and are supposed to have a very little or no hearing. Deafness may be genetic or acquired, depending if deafness is present since the moment the child is born or later.

In chapter 4.3, this monograph looks over deafness citing several authors taken into account to set, first the physiological causes for deafness (WHO, 2015), and after the

sociological situation of the population with this impairment (Perez de Arado, 2011; Usma, 2009; Versaveau, 2012; among others) .

3.4 Sign language

Sign language is a visual language used by the deaf to communicate (de l'Épée, 1776; Stokoe, 1960; Young, 2013). It is a complete language, recognised as a language by many countries even if in some countries it is not the case (De Meulder, 2015). In Colombia, the law 982 (Congreso de Colombia, 2005) sets the recognition of the Colombian Sign Language (C.S.L.) and give several official definitions related with deafness and the deaf population. All sign languages, and therefore the C.S.L. are composed of positions of the hands, movements of the body and expressions from the face to complete the meanings user could need to express (de l'Épée, 1776; Stokoe, 1960; INSOR Dictionario, 2011; among others).

3.5. Deaf rejection of an aural world

We find across the literature that all deaf reject the aural world. It is understandable as a reaction to the rejection that oral society has made of them from several centuries (De l'Épée, 1776; Kerbourc'h, 2007.). Manifestations of the deaf rejection are very well explained in the novel *Eyeth* of Young Kesley (2013) but other testimonies can be found as, among many others, in the Perez de Arado article (2011). As a result of this rejection, most of the deaf are not motivated to learn to pronounce the official language of the country where they live, and even less a new one (Domagała & Kontra, 2016; Erting, 1985; MEN,

2006.). Therefore, to have some motivation from the majority of the population of the scope of this monograph, it is important to consider the restriction of the English instruction to not aural skills (Gallaudet University, 2018, Sheilla, 2011; Versaveau, 2012).

Once accepted the need to teach writing and reading skills to our target population, in this case the Colombian deaf, this monograph mentions the authors that help to clarify the concepts of reading and reading comprehension. Concepts such as deafness itself, the deaf population, how they communicate, what a foreign language is for them, whether they can learn to speak and in which measure they need to speak, how to teach them to write and read an aural language and, finally, how literacy of deaf may be affected by learning that spoken language will take specific chapters each one, because they are, in fact, the core of the subject of this work.

3.6 Definition of Reading

For authors like Calvet (1996), from the prehistory, humanity has tried to avoid that their messages disappear after pronouncing or signing them. This conducted to the invention of the writing systems. Men then created systems where the words were coded into, generally visual symbols that would last longer after the voice or hand movements had gone and the memory could fail.

Oakley (2017) opens the skill of reading to a more wide idea, assigning other functions to the reading activity. Reading does not need to be limited to transcript strictly language signs, but it can transcript a musical score for instance. The fact is that authors like Oakley (2017), Calvet (1996) and others, accept that reading allows the reader to gather information from some symbols, and those symbols are the transcription of a text.

Therefore they suppose the existence of a text to be read, indicating the will to communicate from the writer to the reader. To simplify, we will limit here “reading” as the ability of the reader, to decode the meaning of a written text in a specific language.

3.7. Reading comprehension

The codes used to give longevity to the messages of the human being took long periods of time to be created, especially when invented from the beginning (Calvet, 1996). When the written system has been taken from other culture, this period of time may be shorter, limited to the time required to adapt the system to the local language and to spread the knowledge of this new system among the population. Regardless if the time of creation of the written system has been somehow economised, the time to form a literate community is not negligible (Calvet, 1996). Once the code was created and known, and a text was written, to translate those symbols into meaning implies the cognitive process of the reader (Fame, 2012 and Oakley, 2017). As explained by Burchiellaro (2013) when she cites to Gray William (1956), the major aspects of reading can be classified into four main topics which are: word perception, comprehension, reaction to what is read and fusion of new and old ideas. This leads to the concept of “reading comprehension” considering this as an independent concept, which includes the need to have the symbols that constitute the system shared by the writer and the reader. In a more succinct way, reading comprehension is the process of making meaning from text as Wooley (2011) points out in his introduction to the chapter about the reading comprehension. For all these authors, however, the common term is that reading is a cognitive process and consists in decoding a system of signifiers into language signifieds.

Joël de Rosnay (1977) gives a complete definition of system even if it is not an elementary one, which says: “a system is a set of elements in dynamic interaction, and organised for a purpose¹” (p. 92). Once armoured with this definition of system, we can say that a cognitive system is the set of elements that allows information to be stored in our brains. In consequence, reading comprehension is the process of translation of the written into a form usable by the reader’s cognitive system. That is to say to integrate that information into de pre-existing knowledge of the reader’s memory system. The cognitive process of reading consists in the interactions between the new information the text contains, and the set of related knowledge in the reader’s long term memory (Samuels & Eisenberg, 1981).

Usually scholars set a strong link between language and thinking, and therefore a balanced teaching of reading must combine both a text based approach and a discourse approach, in such a way that they be interactive and in a reciprocal process. Thus, the cognitive process of reading is to make appropriate choices between contextual cues and the code in which the text is written. The skill to decode that text implies to take into account even the intention of the author, and the disposition to infer from the context the meaning of the unknown written signs. (Woolley, 2011)

Based on what Samuels and Eisenberg (1981) says, Woolley (2011) analyses the difficulties one can have to read, starting by an accurate definition of reading, and from there he elaborates those difficulties. The subjects to whom this study is dedicated at last instance, the deaf, will have, by definition, at least one of those difficulties, nevertheless it is important to set what to teach reading skills as a foreign language is, before analysing

¹ Un système est un ensemble d’éléments en interaction dynamique, organisés en fonction d’un but.

how the deafness impairment may hamper their reading. According to Versaveau (2012) we need to take into account several factors. First will be that for deaf people the relation alphabet-spoken language is problematic. Second, that the official language writing system is already a second language for them. Then an approach to develop, when not to create, reading skills in a spoken language will look first at the teaching to read in a second language. It is necessary then to determine the reader's linguistic and mental schemata, that is to say, in our case, the Colombian Sign Language schemata, and from there to present the spoken language schemata (Mijulechy, 2008), to make a bridge between an oral language, a not perceived one, and their natural language, that is fully perceived.

4. HEARING AND DEAFNESS

4.1. Anatomy and physiology of the sense of hearing

Hearing is a notion supposed to be general and common to the point that a definition is found directly in a dictionary. The Merriam and Webster dictionary says that hearing is “the process, function, or power of perceiving sound...”, but a definition like this needs to be enlarged to give an idea of this sense. This search for a better definition of hearing is furnished by Steve Claridge (n.d.) who says in the presentation page of his blog, “Hearing is the ability to perceive sound by detecting vibrations through the ear.” Said in these terms, both the dictionary and Mr. Claridge definitions, hearing can be reduced to simple physical data such as the fact that we are normally sensitive to sound vibration between 16 to 27,000 hertz.

Hearing has many applications in the survival environment or in communication. It can be used to alert or to communicate feelings by reaching the appropriate signals to the brain. Noises such as the snap of a twig or the rustle of leaves would alert any living being in the forest of the approach of a predator. The warning sound of an alarm, the siren of an ambulance and the high-pitched cry of a child are other examples of how important hearing is for humans (Goldstein, 2009).

There is a whole system to convert the external physical vibrations into conscious perceptions called the “auditory system”. The tasks of this auditory system are three. The first one is to have receptors of the sound stimulus, then to transduce this stimuli, which are pressure changes of the air, into electrical signals, and finally, to process these last electrical signals to

determine qualities such as pitch, loudness, timbre or location of the origin of the sound (Goldstein, 2009).

The organ that converts the physical vibrations into nervous impulses are the ears (Alberti, 1995).

The ears are paired organs, each in on one side of the head in human beings. The ear is considered in three parts, the “Outer ear”, that includes the visible part of this organ, the pinna, and the auditory canal. Its function is to gather sound and to transmit it to the tympanic membrane. The “Middle ear” starts from the tympanic membrane to finish in the cochlea, where begins the “Inner ear”. While the middle ear transforms the waves of the sound into mechanical vibrations, the cochlea transforms these vibrations into nerve impulses that go, now, to the brain, to be processed (Pickles, 1982).

The outer ear is composed of the pinna, and the auditory canal and they are covered by skin. The position of the pinna catches the sound coming from in front in a major acuity that those coming from behind. At the same time, because of the size of the head, the pinna allows the person to localise sounds, because the ear nearest to the source of the sound perceives it faster and in a more intense stimulus (Goldstein, 2009). Once the sound is caught, it is directed by the pinna, to the ear canal, also called meatus, where some sounds are amplified to impact the tympanic membrane, where finish what is called the outer ear. This amplification of a selected group of sounds is done because the sound waves are reflected by the shape of the pinna and then reinforces or diminish some sound’s frequencies. This physical principle is called resonance (Goldstein, 2009).

The ear canal, in its outer portion, produces hair, sweat and sebum that form together the ear wax. As the skin continuously renewing, the wax is charged to expulse the dead cells to the

exterior (Alberti, 1995). The sounds conveyed by the ear canal impact the tympanic membrane making it to vibrate accordingly with the intensity of the sound received (Goldstein, 2009).

If the outer ear finishes in the tympanic membrane, the middle ear begins in it as well. It can be called tympanum or eardrum, or simply the drum. It separates the outer and inner ears. The tympanic membrane is composed of skin in the side that delimits the outer ear and a thin lining membrane in its middle ear limits. Between these two external walls, it is composed by stiffening fibrous membrane.

The whole membrane is less than one tenth of millimetre thick, with less of one square centimetre round surface (Alberti, 1995). Its function is to convert the sound energy into mechanical vibrations (Pickles, 1982). “Sound travels down the meatus and causes the tympanic membrane to vibrate”. It vibrates at the same frequency of the sound wave, with pull and push movements. The amplitude of the deflections of the eardrum are correlated with the amplitude of the sound arrived through the inner canal (Open Learn, n.d. section 2.1).

The middle ear goes from the tympanic membrane until the cochlea. It is filled with air and has a thin tube, called the Eustachian tube that connects it to the nose and makes the middle ear an extension of the respiratory air space of the nose. The function of the Eustachian tube is to equalise the air pressure of the middle ear with the pressure of the nose (Alberti, 1995).

Vibrations are conducted from the tympanic membrane to the inner ear through three bones called ossicles. The names of these ossicles are the malleus (or hammer), the incus (or anvil) and the stapes (or stirrup) (Alberti, 1995).

Two small muscles are attached to the hammer and stirrup and they contract in response to loud noises, vocalisation or general body movement. The function of these muscles are to protect the inner ear from damage, to control loud and low frequency sounds, to reduce the perception of

self-generated sounds and to improve the perception of complex stimuli such as speech (Pickles, 1982).

The malleus is directly attached to the central part of the tympanic membrane and transmits the vibrations of this one to the incus through a solid connection. The connection between the incus and the stapes is flexible. The stapes' flat bottom part, the footplate (origin of its name), is in contact with a membrane of the cochlea named the oval window. If the tympanic membrane area is fifty five square millimetres, the stapes' footplate measures only a little more than three square millimetres, then this difference produces an increase of the force transmitted from the tympanic membrane to the one transmitted by the stapes' footplate in contact with the oval window. It is in this way that the vibrations from the tympanic membrane are transmitted to the malleus directly, then to the incus and are finally amplified by the stapes when its footplate touches the oval window (Open Learn, n.d. section 2.1).

The inner ear is fulfilled with a liquid and without the help of the ossicles the intensity of air vibrations would be lost passing from a gaseous environment to a liquid one. This loss passing from an environment with a different density to another with a major one would be of a little more than 99 percent. This means that without the ossicles, the air vibrations would be less than one percent of the original to be treated by the hearing system. Transforming air vibrations into movements of bones, and due to the shape they have, these vibrations are not only preserved but even increased by a fulcrum effect (Goldstein, 2009).

The inner ear is composed by the semicircular canals, the vestibule and the cochlea. The two first affect the sense of balance, without any intervention in the hearing sense, and therefore will not be treated in this monograph. Only the cochlea has a role in the sense of hearing. It is a bony shape like a snail, from where it takes the name, which is located in the temporal bone. In fact, it is a tube with a conical shape, if considered uncoiled. It is divided into three parts that are:

the “Scala vestibule” which is in contact with the stapes bone by the “oval window”; the central part, called the “Scala media”, and the “Scala tympani”. The scala vestibule and the scala tympani communicates at one extremity of the cone in the helicotrema, and thus, the scala media does not go until the apex, known as the apical end, of the cone, leaving the place for the communication between the two other scalae. The same fluid called perilymph fills the two scalae, the scala vestibule and the scala tympani, while the scala media is filled with a liquid composed of very high potassium and low sodium concentrations, called the endolymph (Open learn, (n. d.), section 3.2).

At the basal end of the cochlea the scala vestibule is closed by the oval window, in contact with the flat part of the stapes and receives the pressure that this bone transmits. The scala tympani is closed by the round window which functions as pressure release surface. The scala media is separated from the other two scalae by the basilar membrane composed of radially oriented collagen fibres (Ashmore, 2002). The basilar membrane is not uniform at all its length. At its apex it is five times wider and it has a stiffness one hundred times lower (Open learn, (n. d.), section 3.3). In this way, various parts of the membrane move upwards and downwards at the same time, depending on amplitude, time and frequency (Open learn, (n. d.), section 3.4).

All the long of the basilar membrane there is the organ of Corti, which contains hair cells that act as transducers of the waves produced by sounds in the basilar membrane into neural impulses (Ashmore, 2002). The displacements of the membranes make this hairs to pivot about different hinging points (Open learn, (n. d.), section 3.5.1). With these movements, the hair cells liberates ions and so generate electrical impulses that go to the nerves.

As far as the subject is not conscious of hearing, the perception is still missing. The electrical signals are transmitted from the cochlea to the brain involving interactions between neurons. Once they arrive to the brain they represent an aural image and becomes part of the

subject's experience (Goldstein, 2009). As for the other senses, hearing uses several parts of the brain to produce that experience of hearing that constitutes the perception. It is important to underline that experience in hearing develops more sectors of the brain. For instance, training in specific frequencies increases the space the brain had devoted to them (Goldstein, 2009).

4.2. Roles of the sense of hearing.

The term of hearing encompass many other concepts such as the fact that hearing people start to have a contact with the external world since the age of 26 or 28 weeks of the fetus (Charbonniaud, 2012). At the same time, De Saussure (1916) affirms that the language, in this case the spoken language, is a contract of a community, that is to say an accumulation of communication acts. It is in this way that Vygotsky (1934) relates the formation of thinking to a social phenomenon; it is for him a "social interaction". We can reduce this point to what both authors, Vygotsky and de Saussure affirm: communication produces the meanings used by a social group and those meanings generate the thinking skill. Anyhow, all these authors agree that in the measure that hearing is the medium chosen by the majority of the society to convey meanings, via the spoken language, thinking is generated by the language, therefore using the hearing skill.

Pinker and Bloom (1990) say in their introduction that "All human societies have language. As far as we know they always did; language was not invented by some groups and spread to others like agriculture or the alphabet". Corroborating in our culture the idea that language was always spoken, we find in the Hebrew bible, The "Tora", the origin of language attributed to the creation itself, because God, to create the light said "let there be light" (Genesis, 1:3). The use of the Hebrew verb "omer" (to say) do not leave doubt about

the relation between the word and the creation. The complete creation act was done by the will of God to say what will be created as a consequence of His act of saying. Even more, it is in this tradition that the language is supposed to be corroborated when the first man named all the animals that were presented to him: “And the man gave names to all cattle, and to the fowl of the air, and to every beast of the field” (Genesis, 2:20).

Actually several linguists differ from accepting evolution or a created gift as the origin of language. We find, for instance, Pinker and Bloom (1990) affirming evolution and Noam Chomsky (2005) rejecting the idea of an evolutionary process in the creation of language. But we are going to dismiss, by the moment, the discussion of the origin of language, as did the Société de Linguistique de Paris in 1866 considering this discussion unscientific (Scott-Phillips, 2010).

From the seventeenth century it was already stated that the object of thinking is the idea, and that ideas have sensation as a first source. Later on, from those first sensations, reflexion will produce new ideas (Locke, 1690). The same author affirms therefore that having ideas and thinking are the same thing. This means that our sensations, and by consequence our ideas, build our thinking system and if the foetus start hearing, having this sensations or ideas, from when it is 26 weeks old (Charbonniaud, 2012), our first ideas starts to form at that age. It is from that moment that humans start setting the bases for our thinking system. By the by, this last information explains why people could think about “innate ideas” to which Locke rebelled against in his first chapter (Locke, 1690). But, as he emphasizes (p. 127), “children, though may have ideas in the womb, have not innate”.

4.2.1 The sense of hearing, the social instrument for communication.

Communication is the process of transmitting information from one person to another. To do so, it is required that a common understanding exists, at least, about the code. This last point is usually accepted to the point of admitting that without a common understanding, there is no communication (Lunenburg, 2010). For some linguists, communication did not started as a verbal system, that is to say that it was not using the sense of hearing to communicate. Primates, by interacting often with the same species, developed a complex system of communication. It could be other kind of signs that evolved into mixed aural and visual signs to transform finally into the aural signs system that became our usual communication tool (Cereci, 2015).

The fact is that for every organism which will move with a purpose, it is mandatory to have a representational system. If the same organism needs to interact with others, a communication system is required too. Human beings seem to be the only animals with a single system to do both functions, the representational and the communication one. Humans have the peculiarity of a single system combining those functions and creating the capacity for language (Miller, 1991).

Locke (1690) affirmed already that man was fitted to speak. He considered that God furnished men with language, and supposed language as a set of articulated words, words that are used as signs of ideas (p. 387). Anticipating to what Cereci (2015), and before him de Saussure (1916) will think several centuries later, Locke considers words as the sensible signs required for communication (Locke, 1690).

We saw before that common understanding was required to have communication, but this common understanding needs a common code between the sender of the message and

the receiver of that message (Lunenbourg, 2010). Nevertheless, that this code be aural is just by chance or comfort as Whitney (1884, p. 421) says: "... the superior convenience and availability of the spoken signs, as compared with those of any other kind". These spoken signs are what we call language, and they have an aural way of transmission, a medium that uses the air pressure changes to be transmitted, to be perceived by the receiver (Goldstein, 2009). Anyhow, as de Saussure says, agreeing with Whitney, language is a social convention and the nature of the signs it uses is irrelevant (de Saussure, 1916). But, here Whitney (1884) affirms that men without hearing abilities are as mutilated beings, while the society learned, may be by degrees, the superior capacities of spoken signs; and these signs, around which the society has been formed (de Saussure), require hearing abilities to be decoded, accepted by the social group, because it is a tool created and given by the community, to produce communication (de Saussure, 1916).

4.2.2 The sense of hearing, the mould of our thinking system.

Goldstein (2009) explains, from the beginning of his book, that the environmental stimuli become attended stimuli when the person focuses her attention on them, and from the first time that happens, creates an image, a representation of what has been perceived. Let us remember that the fetus start perceiving sounds from the 26th week of existence (Charbonniaud, 2012). This early relation of the fetus with the hearing sense as a way to perceive the external world implies that hearing constructs the development of many of the initial images of its world, with all the other senses from that early age. In other words, the fetus generates representations of its external world from that early age, and representations are what is present to the spirit. This leads us to remember Vygotsky when he says "Every

idea contains some remnant of the individual's affective relationship to that aspect of reality which it represents. In this way, analysis into units makes it possible to see the relationship between the individual's needs or inclinations and his thinking." (Vygotsky, 1939, p. 48). And as Lalande's in his "Vocabulary of philosophy" defines representations as, in fact, the concrete content of a thinking act, (as cited by Simard, 1997). We have an approach of the emotional importance of the mother's feelings in the future of the fetus life. Let us take the definition of the act of thinking done by Simard: "I understand the word thinking as everything that happens in our interior in a way that we perceive immediately by ourselves²" (Simard, 1997, p. 4) and then we obtain, therefore, that the first acts of thinking begin from the fetal stage. It is clear that this acts of thinking, this ideas, are related to a signifier, that is to say, they conform a sign, according to the definition of Saussure (1916). The signifier is the sensation and the signified the concept, the idea, the representation of the external world.

The relation between the first thoughts and signs has been emphasised by Vygotsky (1934) when he says: "In the initial stages of child development, we can clearly identify a pre-intellectual stage in the formation of speech and a pre-speech stage in the development of thinking" (p. 245). Vygotsky clarifies this point of view later on giving to language, the usual medium for communication, the power of producing thinking to the meaning of that word. This author does not attribute, therefore, the formation of thinking to the word itself but just to the meaning. But, following Simard (1997) we will refuse here every attempt to explain the inner or outer speech when it is possible to avoid that complication. We will focus, again as Simard does, in the origins of thinking and its relations with speech.

² Par le mot pensée, j'entends tout ce qui se fait en nous de telle sorte que nous l'apercevons immédiatement par nous-mêmes.

What is clearly set, is that speech uses in our societies, the air vibrations medium to communicate. That is to say, the hearing sense to perceive the messages communicated (de Saussure, 1966) (Locke, 1690). Nevertheless, as Vygotsky (1934) said, there is a “pre intellectual” stage in the development of speech, what agreeing to Simard (1997), implies an anterior existence of thinking to language, but just after, from the first contacts with the speaking society, speech becomes the tool to define the world with some precision, it inserts man into the world. This last author puts in Sapir’s mouth that without language human being would be unable to communicate, and therefore to share ideas. The perception of these sounds converted into words, uttered by his fellow men, transmits new ideas to man’s mind (Locke, 1690) that will generate not only new ideas, but improve the capacities of discerning.

4.3 What is deafness?

The World Health Organisation (WHO) (2012) considers that a person has a hearing loss when her hearing threshold is under 25 dB in both ears. The same organisation classifies the hearing loss in several stages, going from mild to severe or profound hearing loss. Of course the hearing loss may affect one or both ears and for Morlet (2016) any diminution of the hearing skill correspond already to a hearing impairment.

When a person cannot hear under a threshold of 25 dB in the ear with the greater acoustic ability is considered with a hearing loss or with a slight impairment (Mathers, Smith, and Concha, n.d.). This person is still able to listen and repeat words spoken in normal volume at 1 metre. When this threshold raises to 60 dB in the better ear, there is a case of moderated impairment. The severe impairment is considered when the person

cannot listen, in her better ear, under a threshold of 80 dB. At this level the person can hear some words when shouted to her better ear; that is to say that the communication abilities, using the aural communication system are already seriously hampered. When the threshold of 80 dB is surpassed as the minimum to listen a sound, the person is considered as a deaf person.

Deafness can be varied and some classifications may take into account the duration of the deafness and then classify it as temporary or permanent. Other point of view to classify deafness may be the degree of the deafness and then it can be partial or complete (Ear anatomy, 2007).

The aetiology of deafness are classified as genetic when the deafness is the result of genetic disorders that interfere with the proper development of the organs or nerves used in the hearing system (Morlet, 2016). The same author considers other causes such as injuries to the ear or head, complications during pregnancy or birth, infections or illnesses, medication and even just loud noisy exposure. This last aetiology is widely spread nowadays and considered the cause of most of the deafness in the years to come.

4.3.1. Social implications of deafness.

Abbot de L'Épée (1776) starts his work mentioning the fact that deaf children are hidden and taken apart from society. He mentions even the fact that in some societies deaf children were simply killed at the age of 3. Mrs Lirio (2007) explains that not long time ago, education was inexistent for deaf children in the Spanish Basque sector. The reason was, explains one of the participants in the talk show, a primary school teacher, that the society considered deaf children unable to learn anything.

Traditionally deaf have not been considered just as hearing impaired people. The construction of the adjectives attributed to them shows the position of the hearing society. Deaf are “invalid” (without value), “disabled” (without ability) or “impaired” (without “par”, Latin word for “equal”, i.e. the word “impaired” means without what is required to be “equal”). The dominant hearing culture generates procedures to exclude the deaf, as every dominant culture does. These procedures are constructed around the requirement of a good use of the spoken language, with its writing system, to establish the rank of a person in the society. This segregation is done by all the establishment, including the family, the school, and the society in general, that participate in its reproduction (Hola, Morales & Soteras, 2003).

Nevertheless the deaf have their own culture, with its own history and formed by development processes centred in the identification, even the discrimination, but mainly centred in their common language, the Sign language. If in order to have an identity, the individual starts to admit the social models of a society, but deaf are precluded of the hearing culture and its models, and therefore they find that the school imposes the dominant ideology, i.e. the hearing one, to homogenize the different identities (Hola, Morales & Soteras, 2003). The first efforts to integrate the deaf were based, therefore, in the negation of the deaf culture, mainly in the negation of their own language. At least, and thanks to efforts such as those of Stokoe (1960), the society is changing its position towards the deaf. However we still can observe remnants of the old mentality (Hola, et al., 2003).

The families, especially the families with hearing parents with a deaf child, continue trying to normalize their child, in this case choosing arbitrarily the definition of normality, and consequently to consider the hearing identity as the positive one. The immediate corollary of this attitude is to give negative values to the deaf identity. The deaf child must,

then, hide and interiorise fragments of his identity from his early childhood in his family. School, with a less emotional importance, continue this negation of the deaf culture, except when the child goes to a specialized school. All these realities that the deaf must confront make him a different or atypical individual (HOLA, et al., 2003).

All these aspects favour the formation of strong groups of deaf people where they can find other people with the same feelings and, especially with the same resentments. Almost all of them have memories of disdain and share generally the same problems in work or in their social lives. They have in common not only the same language, but the same feelings that the system is not fit for them. For instance, most of them think that the school is centred in a spoken world, and deficient in its content. And as a consequence of that deficiency of schools they often get unsatisfactory jobs, with low remunerations and usually set them to work in dangerous situations (HOLA, et al. 2003; de León, et al. 2007).

4.3.2. Mental implications of deafness.

In point 4.1.2. is mentioned Vygotsky where he said that the speech determined the beginning of thinking (Vygotsky, 1934). Besides this, already from the seventeen century, Locke (1690) affirmed that the object of thinking is the idea (p. 86) and that all ideas come from sensation or reflection (p. 87), and if we know that the foetus can have hearing sensations since it is 27 or 28 weeks old (Charbonniaud, 2017), we can see that a child born deaf will lack this early source of sensations, therefore of ideas (Locke, 1690). Even more, as far as the society is based on the spoken language as medium for speech, deaf children will not have access to the social legacy that the language is (Saussure, 1916).

As Locke said (1690, p. 100), “a man begins to have ideas when he first have sensations...”, and goes forward in the importance of ideas to permit the mind to develop complex ideas (p. 146-149), that are produced by the communication with other people using a comprehensible language (de Saussure, 1916). This set of ideas, simple and complex, always received from sensations, lead to knowledge, that in the terms of Locke is just “the perception of agreement or disagreement of two ideas” (1690, p. 515). Vygotsky (1934) coincide with both authors when he affirms that concept formation is a function of socio-cultural development.

By definition, deaf are immersed in an absolutely linguistically incompatible world. Especially deaf children from hearing parents have not a real family’s communication, which produces often violent domestic situations (de León, et al. 2007). The development of the deaf child is hampered by his condition, because the most of the speeches, the inner one and the overt speech (Vygotsky, 1934), which influences the start of thoughts, with all the rapprochements between “words” and meaning are missing. Therefore, deaf persons, in the absence of contact with people who uses a language they could perceive, will not develop a “normal” thinking skill. But when they are in contact with other deaf population, or whoever uses a code perceptible and known by them, their thinking skill develops in the measure the messages in that code furnish simple and complex ideas required to understand those messages.

An immediate evidence will explain this situation; hearing children arrive to the first year of formal school, at an age of about 6 years old, using, in the South American case, something like five thousand words learned by numerous significant contacts. The deaf child, with both parents hearing normally, will arrive to the scholar age using perhaps three hundred words. In this way, deaf students arrive to secondary school with an

elementary and domestically use of their own language, the signs language. Therefore their conceptual capacity does not allow to adjust many new knowledge and concepts (De león, et al. 2007).

Deafness does not affect the mental capacities of individual from the onset, but in a hearing society where everything is aural, these capacities may be undeveloped from the beginning of the child's life (De león, et al. 2007). Even more, when deaf are in the know of his intellectual issues, to be aware that their difficulties are not due to any "illness" but just due to the abandon or indifference of his close family, to accept their condition of deaf people, turn them to feel pain and shame. The normal consequence of this feeling is to develop a low self-esteem. This is understandable when they think to all the benefits they could have if they were treated according with their condition, (Holo, et al. 2003).

Abbot de l'Épée (1776) had already shown in his book that deaf are able to learn, and this since several centuries before, when he says at the beginning of his work that "scholars know that from two centuries ago, have already appeared deaf persons more or less educated³" (p. 2). As a proof, in the rest of his work, written as the dean of his own school, he gave a normal education to his students. De l'Épée (1776) affirms that the education of the deaf population was already considered very difficult, when it was not impossible. Before de l'Épée, a Spanish author, Bonnet (1620) considered that being excluded from the use of the hearing, a visual means of communication needed to be used.

It is important not to forget, as said before about the mental implications of deafness, that notwithstanding the undeveloped capacities of the deaf (De León, et al. 2007), due to rather a social indifference who does not communicate with them in a way

³ les Savants n'ignoraient pas que depuis deux cents ans il avait paru quelques phénomènes en ce genre, je veux dire, des Sourds & Muets plus ou moins instruits.

they could perceive, they have no major difficulties to learn, besides the communication issues. Those difficulties they do may have are related to a deficient sequential memory (Hamilton, 2011), that produces lower rates of proficiency compared with hearing students in recalling lists, for instance.

It can be established that deaf people have not major problems to learn by the existence of the Gallaudet University, the first university for deaf students in the world, who has in his program studies for more than forty different degree programs (Gallaudet University, 2019). These programs cover different possibilities such as accountancy, mathematics, philosophy and many others. Their graduate degrees are internationally renowned and prove that deaf can learn, if they are taught with methodologies that fit their particular situation.

4.3.3. Hearing aids and other solutions for deafness.

The search for a “solution” to deafness has been focused from different approaches. The first one is the “integration” of deaf people to the community, understanding “community” as the hearing part of the society (Cordano, 2016; Perez de Arado, 2011; De L’Épée, 1776). With this scope, lip-reading was the first “solution”. After appeared the acoustic aids, with progresses according to the technic progress. Finally, and always following the technics, the cochlear implant emerged as the great and supposed total solution, but with several drawbacks rose by the deaf community itself (Cordano, 2016; Perez de Arado, 2011; Paul, & Whitelaw, 1990).

A good definition of what lip-reading is would be the combination of lip pattern, face and body movements, to make them correspond to the articulated phonemes people use to

speak. Nowadays many people consider lip reading as not accurate (Morakova, 2011), but some people born deaf affirm, after a hard work, they have learned to lip-read and to be proficient understanding a speech they can see (Priyanka, 2011). Lip-reading as a solution for deafness exists from far ago. Already in the XVIII century, Abbot de L'Épée explains that a person called M. Perreire had the hope to teach deaf children to understand the spoken language developing the skill of reading the lips (De L'Épée, 1776). In fact, Abbot De l'Épée himself taught his students to read the lips as the best way to communicate with the hearing society, when, for instance, speaking about the use of the signed alphabet by the deaf: "if he could listen with the eyes, and to express with his own sounds, he would soon abandon the signed alphabet⁴" (p. 155). This abbot considers the lip reading, and teaching to speak a sure way for the integration of deaf in society.

The hearing aids are usually specific for each type of deafness. Among many classifications of the types of deafness we have that of the Miller-Keane Encyclopaedia and Dictionary of Medicine, 7th edition, 2003, as cited in the Free dictionary, which classifies hearing loss into three types: those related to the deficient transmission of the sound waves through the canal of the external or the middle ear, called *conductive hearing loss*. Those related to pathological changes in the inner ear are called *sensorineural hearing loss*. The hearing loss produced by pathologic conditions after the inner ear until the brain, are called *Central hearing loss* (The free dictionary, n.d.). The French Coquelicot association have two main types of hearing loss related to the organ affected, *Transmission deafness* when it is related to a damage of the middle or external ear, and a *Perception deafness* when it is

⁴ S'il pouvoit entendre des yeux, & s'exprimer de vive voix, il auroit bientôt abandonné la Dactylogogie.

related to any damage from the inner ear until the brain. Of course, this association has a third type of deafness, a compound of the two firsts (Coquelicot, 2018).

A definition of hearing aids is furnished by Paul & Whitelaw (1990) when they cite in page 76 to Stab (2002): “The function of a hearing aid is to amplify sounds to a degree and manner that will enable a person with a hearing impairment to use his or her remaining hearing in an effective manner”. Besides the difficulty to define what could be a normal sense, all authors agree that there not exist a device that restores completely the hearing sense (Coquelicot, 2018; Paul & Whitelaw, 1990). In the same way, these authors insist that hearing aids are just that, aids, they are not a healing miracle. Hearing aids are only devices that support hearing (Paul & Whitelaw, 1990).

We find then mainly two types of hearing aids, those related to transmission deafness and those related to the perception deafness. Devices for the transmission deafness are mainly the hearing prostheses, which exist, in different forms, from far ago. Their main function is to funnel sounds through the ear canal (Paul & Whitelaw, 1990). Devices for the perception deafness are mainly the cochlear implants. These implants do not take into account the outer ear nor the middle ear. Even a part of the inner ear is neglected in the concept itself of the cochlear implant (Coquelicot, 2018).

We will see these two types of hearing aids in a more detailed way:

4.3.3.1. Hearing prostheses.

The hearing prostheses are focused in the solutions to the conductive hearing loss. Patients with conductive deafness have normal auditory discrimination, but the sound does not arrive to the cochlea, where the sensation is perceived. So, when the sound overcomes

the barriers to its detection in the outer or the middle ear, it can be perceived by the patient. Hence, what the hearing prostheses do is to amplify the sound to allow it to reach the cochlea, avoiding the barriers that different causes could put between the external sound and the sensitive nerves. What they do is to bypass the contribution of the conductive pathway to hearing (Baguley, 2002). In other words, a hearing prostheses amplifies the sound to ensure that sounds are audible (Canadian Hard of Hearing association, CHHA, n.d.; Paul & Whitelaw, 1990).

In the beginning, several centuries ago, this kind of hearing aid existed, from the corn to direct the sound to the ear, as an ear trumpet, to the actual digital devices. Nowadays, thanks to the progress in computerised instruments as much as in the miniaturised electronic devices, these hearing aids are much more comfortable than they used to be a century ago. Independently from the style and technics used in the hearing prostheses, they are constituted by three main elements: a microphone, an amplifier and a receiver. The sound waves are captured by the microphone, transformed then into electrical impulses sent to the amplifier. These electrical impulses are actually modified in the amplifier, to fit the bearer needs, when needed. The receiver converts these modified electrical impulses into acoustic signals in the user's ear canal. Hearing prosthesis takes the sound in the environment and reproduces a sound in the ear canal. It is the same process than the normal listening, just avoiding the interferences that may exist in the hard of hearing person who uses these devices (Paul & Whitelaw, 1990).

The disadvantages with these prostheses are mainly the batteries dependence, the consecutive issues that may appear for having a foreign object inside the ear canal, and the adjustment periods (CHHA, n.d.; Baguley & Mc. Ferran, 2002). The irony with these prostheses is that they usually resolve impairments that can be corrected with surgical

interventions. These interventions moreover do not present any of the disadvantages related to the use of these prostheses (Baguley & Mc. Ferran, 2002). Prices fluctuate from 700 € to 2,200 €, per ear, in France, and for the year 2014 (66 millions, n.d.)

4.3.3.2. Cochlear implant.

A cochlear sensitivity decrease may be produced by age, called presbycusis, and it is almost universal. Other causes for deficiencies in the cochlear function may be several illnesses such as infections, meningitis, or noise at excessive levels, and, of course, a congenital imperfection. This decrease consists in the damage of the hair cells in the cochlea or in the basilar membrane, deterring the sound impulses' transduction into electrical impulses. Usually there are not surgical interventions to correct cochlear malformations once they are observed. The result of any of these causes of cochlear reduction of sensitivity, by itself, is not the capacity to receive the sound, but the capacity to transmit the electrical sign to the brain (Baguley & Mc. Ferran, 2002; Paul & Whitelaw, 1990).

Cochlear implants are electronic devices that convert the sound into electrical impulses which go directly to stimulate the auditory nerve (Ear anatomy, 2007). Cochlear implants are composed of external and internal components. The external components are a microphone which picks up sounds in the environment, and a speech processor to transform the sounds received by the microphone into a set of stimuli to transmit to the electrode array in the cochlea. The internal components are the electrode array which divides what were sounds into frequency bands to stimulate the basilar membrane directly, and the internal receiver which receives digital information from the speech processor to be treated

by the electrode array (AB's HiResolution Cochlear Implant Technology, n. d.; Paul & Whitelaw, 1990).

The chirurgical operation consists of placing the internal parts under the skin, behind the ear. After a cut behind the ear, the surgeon opens the cochlea to implant electrodes into it. Then he or she will place the receiver device behind the ear, securing it to the skull in that area. And then, he or she proceeds to close the incisions. The operation may last from five to six hours, observation time included. One week after the operation, the stitches are removed and increased pain, drainage or fever can be treated by the health carer. Once the surgery is completely healed the implant devices are activated. Four or six weeks after the surgery the external parts will be added. It is in this moment when the speech processor is programmed and activated to allow the internal devices to stimulate the auditory nerve. Fine tuning and several adjustments will require visits to the specialist during several months (Cochlear implant surgery, n.d.).

Cochlear implants are a “bionic” construction in the human body. If for the other hearing aids, the receiver is considered as a “user”, in the case of the cochlear implants he or she is considered as a “patient”, with all the social threats this term means for the deaf community. In fact, the hearing loss is considered as a disease to be cured and the cochlear implant is the ultimate way to eradicate that illness (Paul & Whitelaw, 1990). An argument in favour to use cochlear implants in children is that the cochlea does not evolves since birth (Paul & Whitelaw, 1990) and therefore there is not a minimum of age to use this implant. The FDA considers the cochlear implant in children 12 months and older, even if some studies affirm it is save for children 7 to 12 months of age (Paul & Whitelaw, 1990).

5. DEAF PEOPLE AND LANGUAGE

Every social group has a way to communicate ideas. The deaf people have their own way to communicate, and it is the sign language, using a visual media to convey their ideas, as well as the hearing people use the sound media to make their signs received by others. Sign language has its particularities, evolving continuously, and its own expressions to communicate the proper desired meaning of any message. The main difference of these two ways to transmit thoughts, is that because the deaf cannot perceive the sounds, they use visible signs exclusively, while hearing people uses mainly the sound vibrations of the air. Wherever there is a community using other language, the “speakers” of that language tend to form groups, to share their ways of thinking and to reinforce their identity. In the same way, deaf people share a language, and therefore they form a social group with their own world view, where they find the same social system and avoid the disdain that their difference can produce. Even more, these characters may shock or appal characters of other groups, and when one of the groups they are in contact with is a dominant group, rejection can arise among both of them.

In every deaf community a Sign Language appears, with its specificities. In Colombia there is a standardised Sign Language, the Colombian Sign Language, called LSC for the initials in Spanish Lengua de Señas Colombiana, that is normally understood by all the Colombian deaf people, with small local dialects. This common language obeys to the need to communicate beyond the adjacent neighbour. Only that in the case of deaf people those adjacent persons use another language, a spoken one, that covers many aspects of the life, not only to speak but to be able to understand many messages that are written,

for instance. The written system is, in much of the countries, an alphabetized system, which means a copy more or less exact of the spoken language. This means that the written language will convey all the absences and the differences that the original spoken language had with the Sign language. Its main advantage, for the deaf, is that it is perceivable, but it implies to know a not perceived language to learn to use it. Therefore, it is a challenge to accept that, for the deaf, the whole action of reading and writing is not in relation with any perceived language.

People learn to speak reproducing the sounds they listen during their development, and when they have flaws in any of the organs used to speak, their speech will be imperfect, of course. Deaf cannot speak because they do not perceive those sounds to reproduce, independently of how proper their speech organs could be. For that reason, children born deaf are mute too, not because they cannot speak, but because they have not heard sounds to reproduce. This means that deaf people, when they do not have problems with the organs involved in speech, could learn to speak if they were taught to use those organs appropriately. The real question is to know if deaf need to learn to speak a language that they cannot perceive. Learning to speak would imply to learn how to produce those air vibrations needed to produce phonemes first, words after, and all those differences with their natural language that is sign language. The second issue is how they could perceive that aural language to receive the messages that hearing people would transmit to them, and the solution could lie in lip reading, but this solution is not a real one for many issues attached to it. Lip reading has never been considered as reliable enough to replace the possibility of hearing or reading a message, and moreover, nobody can acquire a satisfactory level in lip reading without being a master in the language he needs to lip read,

and to have an expert knowledge of a spoken language is a hard undertaking for a deaf person.

These matters will be more detailed studied in the next points, to leave the reader with a complete vision of them, in order to understand the pedagogical implications that derive from these previous fundamentals of the relations between deaf people and language.

5.1. Communication and deaf.

The word “communication”, accepted as “the thing communicated”, or “Action of the verb to communicate”, from the Latin word “communicare”, had the meaning of “share”, and its related verb “to share”, understood as “to put in common” (Bateson G., Birdwhistell R., Goffman E. et al., 1981). To be certain that it has been shared the communication needs a feedback from the interlocutor proving that the sent message was well received. Under this definition, communication between two persons would be a conscious and voluntary action. Even though, in opposition to that voluntary action, Paul Watzlawick (1967) put in the second chapter of his work “Pragmatics of Human Communication: A study of interactional patterns” the first axiom of communication as “One cannot not communicate”. This axiom means that communication cannot be just reduced to the direct speech that brings a message, but to all the connotations that everything conveys to an attentive reader, listener, or an observer. As an example of this impossibility of no communication, one can think about the geologist who finds a special stone in a wood. That simple stone can give significant information to this person, while it

could mean nothing to a not specialist. If in the act of communication it is considered that there are a sender, a receiver, a message and a code, being this last one an aural code, under the logic of the first axiom of Watzlawick, the extent of a message depends on the receiver's knowledge of the code.

Deaf people cannot perceive the aural code, but they are very sensitive to all the other sensations that the available senses can transmit to their brains. They understand and are conscious of messages transmitted to their brains by the sight, the smell, taste, or touch. Even if deaf are not the lone humans to perceive these hidden messages, they are very sensitive to them. They understand communicative connotations in every action, be it deliberate or not, from other people.

As an example, about smell messages for deaf, there is the advertisement for a Japanese fire alarm for the deaf (Hardach, 2008), consisting in a wasabi smell diffuser. Wasabi is a very hot spice in the Japanese food, which is easily related with fire. This fire alarm seemed much more effective than a simple vibrating device because it was not tied to a direct contact with the body of the deaf person. It is well known that the deaf are very sensitive to pheromones, and when a girl is in her reproductive period, she is spreading a cloud of sexual pheromones around her. In a specific case, a girl in a school specialised in deaf people, in Pereira, Risaralda, Colombia, arrived to class in these moments, gathering the attention of all the other students, boys and girls, towards her. An experienced teacher who was surveying her, explained that in this moments deaf people were normally impervious to the social rules commonly accepted among the hearing people, and therefore, the girl, who was new at the school, was not ready to refuse the appeals the other boys could do to her.

Another example is that Deaf people rely mainly in the sight to communicate, and thus they are attentive to all visual information. This is the main reason why deaf girls are rarely made up with coloured cosmetics, and teachers do not wear flashy clothes nor jewellery because they would be distractors for the deaf interlocutor. A way to understand this situation could be that as well as a person in a discourse does not speak about things not related to his message, for a deaf person, smells or flushed jewellery would be “noisy” in his/her message. The natural visual languages used by the deaf people are Sign Languages, which have the same complexity than aural languages.

5.1.1. What are sign languages?

Deaf population generates their own visual language, the Sign Language, S. L., composed of signs using their hands, position of their fingers, shoulder shrugs, and even the expressions of the face. These languages are neither pantomimes, nor a copy of the surrounding spoken language (de l'Épée, 1776). As for every language, it has differences and forms evolved from the local needs and customs. These differences are enough to make different S. L. incomprehensible for other S. L. user, which is to say that S. L. is not a universal language. Nevertheless, as every language, it is a complete system and allows their users to communicate fully as a spoken language can do (Stokoe, 1960).

Sign Languages are not a single one, as a universal language, the differences that exist between Sign Languages are the equivalent to the differences one can find in spoken languages. As well as spoken languages differ in grammar, syntax and pronunciation, the signs languages differ in their grammar, their syntax and the way to produce their signs. When two words differ only by one sound, these sounds that make the difference are called

minimal pairs. An example would be the words “alive” and “arrive”, whose sounds /l/ and /r/ are the only difference. The set of all the minimal pairs of a language are called phonemes. S. L. “phonemes” were named *cheremes* by William Stokoe, the first linguist to study the Sign Languages linguistics. The cheremes consist of different positions of the hands, fingers, head, body, different expressions of the face, and different movements of the body charged with sense. This is how an open hand, with the thumb fold in it, may have a different meaning if the hand is still or swinging twice, fingers up or down, etc. (Stokoe, 1960).

Another difference of S. L. with aural languages is that while the former are simply linear, one phoneme at the time, and only one, S. L. have positions of the head, body, hand, fingers, movements and gestures to produce signs with different meaning. This complexity of the cheremes indicate how rich a S. L. can be. In addition, the use of the two hands, their position and movement of the hand or fingers, allow these languages to form shorter signs, shorter “words” to keep the analogy with the aural languages. Aural languages must set their phonemes one after the other in a strict linear and mono dimensional sequence. Sign Languages have a multidimensional sequence. The sign would be different according to the shape of the brow, or the mouth, for instance, while the fingers take a particular position and make a specific movement.

Each group of hearing people has its spoken language, but the contact with other cultures can bring new words for new objects, or just progress in an intellectual field can generate the need of new words that are created to name that new idea. Sign languages proceed in the same way (Meir, Sandler et al., 2003). When these signs are a pure creation of this population, they are called “natural signs”. When the signs are borrowed from other

language or correspond a creation to signify a new idea, then they are called “systematic” or “methodological signs” (de l’Épée, 1776).

Deaf education has had the scope to make these students at least to learn to read the spoken language of the country. To do so, a correspondent alphabet was created into signs, which is called dactylological alphabet. It is just a representation of the alphabet letters in hand signs. It is very useful to give a written idea of an aural word when addressing to a deaf person, mainly when the deaf already knows the spoken language. The major issue of this kind of alphabet is, first of all, that the deaf student needs to learn the spoken language in order to use it, because as representation of the letters the alphabet is a transcription of the aural language that the deaf cannot perceive. The other flaw of this kind of alphabet is that it is cumbersome and makes every talk long and tedious. The “natural signs” are much faster, making the flow of a conversation practical and convenient (de l’Épée, 1776).

There are very few centres of education for the deaf, and when they exist, the education neglects many subjects that would be normal in a hearing school. When teachers cannot avoid to treat with these subjects, they just indicate them using the dactylologic alphabet. Step by step the specialised education for the deaf is getting permeable to all those subjects that are usually reserved to hearing people, such as philosophy, psychology, or history. In general, Social Sciences departments avoid deaf people in most of the universities of the world, position that tend to disappear, and with these new studies available to the deaf, a great quantity of new signs are required to set a meaning in the sign language. This situation of a language demanding a huge amount of new signs generates changes in the language, and in consequence Sign Languages are constantly evolving to adapt to the intellectual needs of its surrounds.

5.1.2. Colombian Sign Languages, an overview

Similarly to spoken languages, Sign Languages may be studied from a diachronic point of view; therefore, sign languages belong to families which can be very different from one country to other, even if the spoken languages are very close. As an illustration, the Nicaraguan S. L. was created by the deaf set in isolation, independently of any Spanish influence, and thus it is absolutely different to any other S. L., even to those of the surrounding countries where the official language is Spanish too. Another case is the differences between the S. L. used in England, and that used in the United States, they are absolutely different and comprehension between users of each other is impossible. Even their dactylological alphabet is completely different, as it can be seen in figure 1 and figure 2.



Fig 1. American Sign Language alphabet. Reprinted from American Sign Language Alphabet in Wikipedia, 2016. Retrieved July 28, 2019 from:

https://en.wikipedia.org/wiki/File:American_Sign_Language_Alphabet.gif

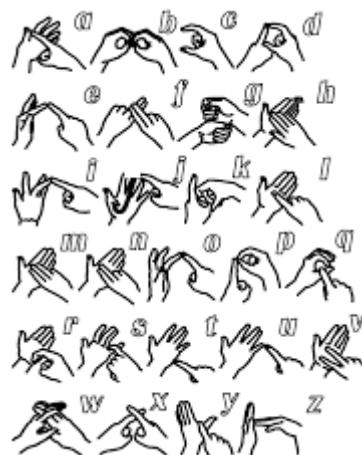


Fig 2. British Sign Language alphabet. Reprinted from British Sign Language alphabet in Wikipedia, 2013. Retrieved July 28, 2019 from:

<https://en.wikipedia.org/wiki/File:Bsl-sign-language-coloring-at-coloring-pages-for-kids-boys-dotcom.svg>

These differences come from the diverse evolution paths the language has followed and the varied influences of the spoken languages could have in them. The French S. L. was used first by de l'Épée abbot; Laurent Clerc, a deaf person himself, former student from the de l'Épée's school, went to America with Thomas Hopkins Gallaudet and became the first deaf teacher for deaf students in the United States (Stockoe, 1960). From these French, and after American origins, the Colombian Sign Language (L.S.C. for "Lengua de Señas Colombiana) was created and finally recognized as an official language in 1996 (MEN, 2006). The L. S. C. has some traits originated in the French Sign Language, others from the American one and others which are influences of the Spanish spoken language. Besides the fact that the manual alphabets are very similar, the formation of some words follow, sometimes, the same process (Faber, 2013). The best example of this history progress is the sign for "water". In the three sign languages, French, American and Colombian, the sign "water" is formed by the first letter of the spoken language, in the manual alphabet, put in the chin. This means that in the French Sign Language, from the times of de l'Épée, the letter of the alphabet was the letter "e", which forms the word "eau" (water in French). In the United States it would be the letter "w", for "water", and in Colombia the letter "a", for "agua".

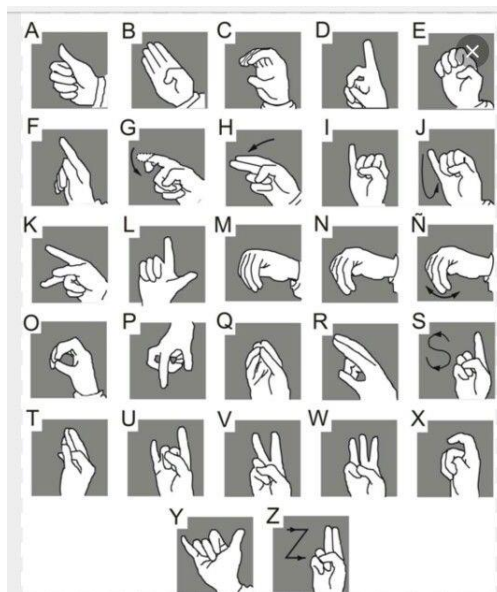


Figure 3 Colombian Sign Language in Pinterest. Retrieved July 28, 2019 from: <https://co.pinterest.com/>

The Colombian Sign Language alphabet can be observed in figure 3, and the differences with the American Sign Language alphabet are the letters “f”, “m”, “n”, “p”, “q”, “s” and “u”. These differences are explained by the evolution this alphabet has had in Colombia, the attempts to unify the divers Sign Languages in Latin America and how the deaf scholars think the manual alphabet might be. For instance, the “f” sign, in Colombia, is supposed to be similar to the written letter “f” in cursive writing, viewed from the side.

As in the American Sign Language, the L. S. C. often uses the initial letter of the word when written in Spanish, as stated before for the word “water”. But when the word was taken from the A. S. L. and that initial letter does not correspond to the Spanish one, modifications can appear, as for the sign “person”, which has the same movement of the A. S. L. (the hand moving down from the front of the shoulder to the waist), but the shape of the hand is an horizontal “C” shaped only with the index and thumb fingers, while the shape of the hand is a “p” in the A. S. L. This specific sign is used often in the L. S. C. because it corresponds to the suffix “er” in English, as the marker that a person does the

preceding sign (which may be taken as a verb). Likewise, in the spoken languages, words such as “teacher” may have a sign in L. S. C. with no relation with the verb of the action. It is important to emphasise that the dictionary of the L. S. C. here in bibliography, (INSOR, 2011) shows the American form for the sign “persona” while the deaf in Pereira, Colombia, seldom understand it and almost never use it.

Every language evolves with the users, and this evolution is faster when the language is in the period of adaptation to the environment. The deaf in Colombia are not a population with immediate and automatic access to education and, even more, many of the words used in Spanish do not exist, as an idea, in the sign language; therefore, many new signs need often to be created, and they are rarely standardised for the whole country. One of these cases are the names of the towns, mainly the little ones, which have no relation with the spoken language. Another source of new signs is the fact that people’s names are almost never used among the deaf community. They use a kind of nickname for everybody constituted of a sign that corresponds to some characteristic of the person. These nicknames, called “sign name” by Young (2013), are composed of the first letter of the name of the person, or simply the distinctive character mixed with other shapes of the hand and the position where it is done. Deaf people is a group in permanent construction and thus, with a language evolving permanently too.

5.2. Deaf people are a particular social group.

The term “culture” is a composite of language, behaviour, customs, traditions, beliefs and the way people communicate with each other. People’s way of thinking is shaped normally via the culture influence, leaving aside the personal values to set them

according with the values of the social group. Children form their thinking system from their own experiences, but these experiences are built in the community where they live, integrating the culture of the community into the individual. In this way, children create constants and variables for each situation of their lives that keep a decipherable pattern of their behaviours that constitutes their identity (Vygotsky, 1934).

Deaf children, mainly when they are deaf from a very young age, cannot perceive the signs that construct the cultural pattern in their minds from the beginning of their lives. Children begin to have self-confidence when they are eighteen months old and from the age of three they begin to have purposeful behaviour, both things related to the community reactions to their actions (Vygotsky, 1934). While these reactions are normally orally expressed in a hearing community, these expressions cannot be perceived by deaf children when their parents do not communicate with them using a sign language. The communication is restrained to the punishments or faces of reproof, which deaf children can perceive, isolated in a non-understandable mass of signs that they only understand as being excluded of them.

From the age of six years to adolescence with intellectual adulthood, children are normally at school, and in the case of the deaf students, it is often the first place where they find other people who communicate with using sign language, a perceptible one. This means that while the hearing child is perceiving information from other people around him, not only his parents, deaf children are fortunate if this information is restricted to their parents, when they know the sign-language, until they arrive to a specialized school, with other deaf children. It is here, in the school for deaf, that these children will have their first contact with a society from which they are not excluded. It is too, at this moment, when they start to receive comprehensible social information, limits, values and behaviours,

which are no longer just guessed but can be explained and understood (Abushaira & Mahfood, 2014).

Normally deaf children have no contacts with other deaf before going to school, and it is at school where they establish their first bonds of friendship, they become conscious of an identity because it is a place from where they are not rejected. With the first contacts with other deaf the child is finally one of them, not the strange one that must be borne. They arrive to a community where the sense of hearing is not an indispensable sense for living, and it is among them that the deaf can start to have self-insurance and to be confident about his life, actions and future.

Nowadays hearing people shapes their culture mostly with the media, and here deaf find another separation wall with them. In the simplest case of the media, the written one implies to learn a new language, a language, in the countries where the written system is not ideographic, which cannot be perceived, for learning to read. The other media are more obviously refused to them such as radio and television are. Therefore, the deaf are an impervious group of people to the mass media culture. Deaf children and deaf teen agers construct their culture basis from other deaf experiences, and their own, but always without the hearing society to transmit the value system that the rest of the population has. They are an independent group isolated by incomprehension from the hearing majority.

Therefore deaf, from the earliest childhood to the end of their lives, fully understand social values, codes and reactions to their acts, when they benefit of contact with their pairs, forming a culture to communicate internally. At the same time all the components of what is recognized as culture, such as beliefs and behaviours, present differences with the hearing culture. Even if some aspects coming from the relations they may have with the hearing people, break into the deaf cultural system, they are restricted to these relations.

They are conscious of being the minority group and they often may have a different behaviour with other deaf or with a hearing people.

5.3. Problematic relationships between the deaf and the hearing communities.

The two communities, deaf and hearing communities, are separated by a wall composed of real difficulties in their communication system and by prejudices that can be real or false. The deaf are considered as foreigners in their own country when they are not simply considered as subnormal or less reasoning than a hearing person. This situation hampers the communication between these communities and leads to isolation and segregation at work and for other social institutions such as school, credit accessibility, health services, cultural life and many others.

Deaf people have not the same impressions in their brains than the hearing community can have because they do not receive any aural information. For that reason, in the case of deaf children born from hearing parents who do not know the sign language, the formation of ideas to construct an elaborated thinking system is not as complete as that of hearing children. This means that for the same educational level of hearing parents, deaf children will perceive less new signs to understand and to assimilate (Favre, 2008). This starts the bases of the negative evaluation of the cognitive faculties of “deaf and dumbs”, as deaf were called in the late XIXth century, when they were considered inferior to hearing evolved people (Mocerino, 2016). This prejudice has been proved wrong when the deaf could have access to an education using Sign Language or even more, when the parents signed at home, either for being themselves deaf, or for learning this language when they

knew their child was deaf. In these two cases children grow up with a cultural background similar to those of the parents.

Communication between the two groups, deaf people and the hearing society, can be hampered, by several causes which could be either real or mere prejudices. Even after abbot de l'Épée, deaf were still considered “deaf and dumb”, considering that the Sign Language could not form normal ideas, and thus, to form normally the mind of a deaf person (Mocerino, 2016). By the difficulties to speak to deaf, the hearing society tends to consider them as a subnormal person with a low level of intelligence, and as a consequence, to create all the social walls to segregate them from the “normal” people (Benvenuto, 2004). Nevertheless some prejudices exist too in the deaf community about the hearing one, and the main one is that the deaf do not consider themselves as disabled, and leads them not to give importance to communicate with people from whom they do not perceive the language. Even more, they do not consider to need any integration to the hearing community. The need to communicate with the hearing society may exist only when there is not a deaf person to satisfy it. The indifference of the deaf towards the hearing community, with its culture and institutions is almost as big as that of the hearing community towards the deaf one. The difficulties to communicate produce in both communities a feeling of rejection, but for the deaf, when he or she is not related with other deaf persons, this rejection goes with isolation feelings (Favre, 2008).

There are, then, three main problems generated from the lack of communication between deaf and hearing, and they are:

- a) The rejection of each other that generates a form of xenophobia.
- b) The isolationism from the cultural life where the other community is not admitted.

- c) The inaccessibility to the social institutions, such as work places, health centres, and many others.

It becomes evident that the absence of communication is the source of these three problems and it is essential to analyse how it could be solved. Concurrently, it is evident that the access to work, and therefore to the economic wealth, is the nucleus from where the other issues are just the ensuing results. But the core of the solution would emanate from the difficulties that appear to communicate. This means that one of the communities, or even better, both communities, learn the other's language. While the hearing person possesses the sense to perceive the Sign Language, the deaf person has not the hearing sense to perceive the spoken language. Even if lip reading is, with all its imperfections, a solution for the deaf to perceive, and as a consequence, to understand the spoken language, it implies first to know the spoken language, previously to learn the lip reading techniques. The Sign Language is not an easy language to learn, because if the hearing people can perceive it, it starts from the base of not perceiving the sounds, which is by itself an additional difficulty for hearing people to learn it. Hearing people is used to "hear" a language, and a language that cannot be heard is not considered a real one.

Some of the prejudices more often found in the work places about deaf are:

- "Workers who are deaf only burden and create problems in the workplace."
- Surveys done among hearing people working with deaf show disagreement about this statement, but the people who has never worked with deaf people agree with it.
- "Managers do not have enough patience with workers who are deaf." It is a constant in all the surveys done.
 - "Deaf workers are less valuable than hearing workers."

(Hasanbegovic & Kovacevic, 2018, p. 52-56)

Discrimination about deaf people is present even if not always admitted by the hearing people, or hidden below the refusal to admit it, as when hearing people considers that "Workers who are deaf cannot thrive in the workplace" is not a reasonable statement but present in work places. As every discrimination, this generates from those who suffer it a refusal to communicate with the dominant group, or in every case, distorts the relationships that could arise between members of both communities. Once deaf suffer discrimination at work, it extends to the financial power, constructing a community always considered as poor when not calling for help; in fact, a kind of possible beggar whose contact is to be avoided.

Deaf are a community that uses a different language than the one used by the majority of the population, language they cannot learn fully except by providing enormous efforts with scant results. In fact, lip reading has too many inconvenient impeachments to ensure a fluent communication between deaf and hearing people, and it becomes a false solution. When deaf people learn to speak after their childhood, the organs to produce the language do not evolve as those of the hearing children and teenagers. The consequence is that their voice is deformed showing their condition and making a conversation disagreeable for hearing people. Besides the difficulties to learn a not perceived language, it remains the issue of perceiving the language used by the hearing people. Lip reading could be a solution, which has its own chapter in this work because it is problematic and considered as controversial.

When the deaf is able to communicate with the hearing person, he or she has to face several inconvenient issues such as:

- To speak slower than usually, with shorter sentences, exaggerating his articulation.
- Not to feel handicapped when the deaf does not understand.
- When a sudden noisy appears, the deaf, not perceiving that noise, continues to speak regardless the fact that the hearing person is not hearing what he says.
- Not to abandon the communication because it asks for overwhelming efforts.

These issues do not exist when the hearing person knows the S. L., but it is normal not to hope to see hearing people learning Sign Language if they are not in direct contact with deaf people. This means that the solution can start to be applied when it has passed a long time without it, and this for each person. At least, for deaf people in general there is not a reproach towards the hearing community for the lack of communication. They are usually conscious that it is due to the different language, culture and way of life. But by consequence, these different language, culture and way of life force the deaf community to be separated and often without access to the social services such as doctors, theatre or all the aural media (Favre, 2008).

5.4. Spoken languages and the deaf

From the last four hundred thousand years human beings seem to be able to use spoken languages to communicate (de Boer, 2016). These means that from that time humanity started to progressively abandon signed systems of communication for the aural way. In a society constructed around the spoken languages, deaf were more and more living in a hearing world, with all its codes and messages. A world becoming more and more complex, with communication systems always based on sounds. Written systems, most of

them, when they are alphabetical, are founded in those aural systems. However, evolution could be different, and humans could not lean toward this way of communication and kept a signed way of communication. Deaf people live in this kind of world, without sounds, and therefore they imagine with ease a society sound free as such as the planet described by Young Kelsey (2013), where there are not, for instance, hearing police sirens nor spoken calls for public services.

5.4.1. Are spoken languages necessary for deaf people?

It is compulsory to admit that the actual society is a hearing one. Hearing sense is mainly used for communication messages, written or transmitted by the media. In countries with alphabetical written systems, studies and every literacy find its roots in a spoken language. This means that the whole messages, and with them the cultural items, are transmitted with systems based on hearing sense, this be by the language, or just as warnings, like the police, ambulances or firemen cars. Actually, everything communicates, including the coffee machine when it is ready, the elevator at the floor required, or just the ring bell at home to announce that someone is at the door. But most of the times these communication systems are aural; beeps, bells, sirens or other sounds are codified to be understood when heard. As a result, it is difficult to find a place where the items of communication are available for the deaf, even in the written form, which is the more perceptible way of a language for a deaf.

Even in this kind of aural world, deaf imagine easily a world without sounds, where messages are merely visual, or mixed with senses such as smell, temperature, etc. Besides the Young's roman (2013), there are many devices to adapt hearing messages to other

sensations such as the alarm with smells, for deaf people who are sleeping, lights to replace the ring bell, and many other adaptations. Of these, the one with the biggest impact is the mobile phone with a camera to transmit images. It is common nowadays to see a deaf person talking in sign language to the mobile phone. Nevertheless there is a realm wherever the spoken languages last unchanged: it is the written system, especially where this written system is related to the pronunciation of the words. When communication is more complex, besides the aural direct communication, it needs to be written to linger in time. And, of course, when the written system is just a transcription of the aural one, it is, for deaf people, a perceptible form of an unknown way to communicate. That is to say, a representation of something they do not perceive in the original form.

Besides that immediate communication needs, as could be a car horn to make you leave the place for it, information, in a more general way, when it is not using sound channels, it is always written, thus in a representation of a spoken form. Deaf are a minority in an aural world, and therefore they are immersed in an environment with signals done for hearing people. Not to be able to perceive those signals, and as a consequence to understand them, is, firstly, dangerous for the life of the deaf. Secondly, it is embarrassing, as could be the case of waiting for the turn to be received in an office, and to be called by the speakers that the deaf cannot hear. Thirdly, the cultural information is mostly written, which implies that deaf must learn to read that system, which is the representation of the aural language, to be able to learn every academic subject. Living in an aural world, deaf need to be able to understand, as much as they can, that system in which the whole information is available.

5.4.2. Can deaf people learn to speak?

There is not a specific organ for speech in human beings. The fact of speech is the set of several different organs contributing to the final scope, the act of speaking. Several organs, the speech organs or articulators, take part in the production of the speech sounds that are represented by the phonemes of a language. They are, for most of the languages: the lips, teeth, alveolar ridge, hard palate, velum (soft palate), uvula, glottis, various parts of the tongue, the lungs, and the nose (de Saussure, 1916). Learning how to use all these organs is a result of imitation of what is heard by children. After many attempts, by the inner hearing canal, children seek to resemble the sound produced with the sound listened.

For deaf people, when only their hearing organs are ineffective and when the different organs intervening in phonation are in perfect shape, the speech is hindered because there are not sounds to imitate. Even though in the past times deaf were always considered mute; deaf are not mute; they have just not learned to speak. This is one of the points of conflict, in the relations between deaf and hearing people; they refuse to be considered as mute because they are not, they just have not heard sounds to speak.

For deaf people, when they are born deaf, there is not that initial hearing stimulus to imitate, and later, if the person tries to learn to speak, cannot make any comparison between the produced sound and the sound listened. To teach a person born deaf how to speak, it is compulsory to show the different organs required to be activated to produce that sound. Once conscious of how to produce one phoneme, the deaf can memorise the technique and to combine the phoneme with others to produce words. It is important to keep in mind that there is not a phonological image in the brain of the deaf person. The learner is dependent on the teacher or the audiologist to perfect his or her speech.

The age and the frequency at which the deaf who learn to speak uses his phonatory organs to speak determines that those organs evolve in the right way to produce sounds as the hearing people do. One of the motives of repulsion from the hearing society towards the deaf people, when they speak is that their voice sounds unpleasant. When the practice of speaking has started soon enough, after the transformations during the puberty have been done, deaf may have the voice with the tonality of the hearing people. How correct their grammar and syntax would be is a second subject to analyse, which is more intellectual than a problem of training. Deaf can learn to speak, understood this “speak”, as producing the required sounds to transmit their ideas, in only one way, from them to the listener. It is necessary to remember always that they cannot hear the eventual interlocutor, and the better the deaf speak, the more the interlocutor will be tempted to respond by speaking too.

5.4.3 Do deaf people need to learn to speak?

The answer to this question could be an evident affirmative. It is always important to be able to transmit your messages in the language of the majority of the people around you. Nevertheless, the deaf will be always hampered to receive the aural answers to their messages. Even more, this necessity to learn to speak is counter by the deaf pride and their refusal of the hearing culture (Perez de Arado, 2011). To make matters worse, learning an aural language is much more difficult for a deaf person than for a hearing person. Aural languages are not only new languages for the deaf, they are not perceived ones. It exists always the lack of the hearing stimulus for the language, as much as for the external stimulus as for the correction of the imitation produced by the internal auditory system. If it

would be important for deaf people to learn to speak, nonetheless the efforts required to do so may be considered as too important comparatively to the results obtained.

To learn to speak is an enormous endeavour for a person born deaf. It means to assimilate a communication system without any natural inputs because it is not perceived. Even more, it is a system completely useless with your own people, the other deaf persons. This rejection is completed by the unpleasant experiences collected during the contacts with the hearing people. The person who wants to teach deaf people to speak will have to be prepared to solve several hindrances. The first one would be the language to communicate with the deaf student. This teacher needs, imperatively, to learn the sign language of the student. After this basic knowledge, a deep familiarity with the different organs taking part in the words' articulation, as well as a solid knowledge in phonetics. With this intellectual baggage, this teacher needs to be ready to explain the importance of knowing how to speak in a world with an aural communicative system, without leaving aside the importance to communicate with the hearing people.

It is not a pleasant argument to say that deaf people must learn to speak as a foreigner might do, but the reasons why deaf need to learn to speak are the same. To get integrated with the majority of the population, even if this reason goes against the deaf pride. Notwithstanding, the fact of learning to speak does not permit to the deaf to be able to fully communicate, because they will not be able to perceive, normally, the feed-back to the sent message. Beside the different aids for helping deaf people to listen, it exists the possibility of understanding what is said to the deaf person, it is lip reading, which encompasses some advantages, when they are possible, and several difficulties.

5.4.4. Some insights about lip-reading.

According to the information in page Hearing link (2018), lip reading can be considered as the set of skills or the art to understand what is orally said by the position and movements of the face and the lips. It is often considered as having a low accuracy because many sounds of the language are different from others because they use internal organs that are not reflected in the face or lip positions, therefore, without any minimal pair for the person who cannot listen them. While linguists call phonemes the sounds of a language, the lip reading theorists call *viseme* the mouth shapes, appearances and changes required to identify a phoneme in the visual domain. The supposed lack of accuracy is based on the fact that visemes are less than 14 whereas the phonemes are between 45 and 53, in most of the spoken languages (Hassanat, 2009). With this reduced set of visemes, the recognition of phonemes is hampered without the help of the aural signal. Words where similar visemes are the minimal pair become the same for the lip reader, and then only the context will allow to understand which word would be taken. Therefore, it is easier to understand entire words than single phonemes, and consequently, understand complete phrases, because the context will fill the gaps.

This filling of the gaps occurs even for the normally hearing people. The phonemes are treated as isolated items in the line of the speech, while the reality is that they change, in that line, gradually to take the shape corresponding to a phoneme. In the word /ma/ the /m/ changes to become the /a/ producing intermediate sounds, only that the brain erases those sounds that are not really neither /m/ nor /a/ to keep just the phonemes corresponding to the language. This linguistic units are demarcated into specific sounds ignoring the intermediate ones. For these reasons, the person who speaks a language will listen the

already known word even if some of the phonemes are missing (de Saussure, 1916). This phenomena of agglutination of different intermediate sounds into a single phoneme occurs when a person is reading too, and a missing letter is automatically put, in the brain, to read without detecting the absence of that letter. Therefore, at least in theory, there is not a definitive impossibility to “lip-read” a language with those 53 phonemes using the 14 available visemes. The shape of the expected word will induce the correct phoneme to generate the mental image of the signifier in the reader’s mind.

The expected word, nevertheless, materializes because the deep knowledge of the language determines a limited set of possible words to occupy that place in a specific context. Therefore, the skill to lip-read a language is based on the deep knowledge of the language to lip-read and in the context. The lack of accuracy of lip reading is a popular belief confirmed by several studies (Morakova, 2011), even for those conducted in complete sentences. Rachel Kolb (2013), a deaf person who learned to lip read to a great efficiency, having a master in English language, affirms that only 30% of the speech is directly understood. She says in her seminal article, citing to the deaf educator Madan Vashista, “that he would rather have an incomplete conversation with a hearing person, one on one, than a conversation using a sign-language interpreter in which he understood everything”.

According to Kolb (2013) to learn to lip read the deaf person will need:

- To be conscious of the need to communicate with the hearing world. While living only among other deaf, this need will not appear, but the majority of the world uses spoken languages and to be able to understand them allows the inclusion in that world.

- To have a great deal of patience and dedication, because to be able to lip read will take at least more than 10 years to obtain some accuracy understanding what he reads.
- To know perfectly the spoken language to learn to lip read. The art of guessing the absent words and to choose among the possible options implies the immediate choice of those possibilities.
- To be looking to the face of the interlocutor, having the correct lighting, enough to see those little changes in the face of the speaker and dim enough to not to get dazzled.
- The interlocutor speaks clearly and without exaggerated movements that would create misleading signals.

To learn to lip read would mean to be able to communicate with hearing people, even though without the same easiness than hearing people can do. The difficulties encountered to understand a talk using a spoken language dim with practice, but to encounter new people or new accents can give the impression of the futility of all the former furnished efforts. This can explain why so many deaf refuse to try to understand the hearing community, but the satisfaction to be able to understand that not perceivable world is unrivalled (Kolb, 2013). Despite all the advantages of a good lip reading, writing and reading the spoken language allows the clearer communication between deaf and hearing people who cannot sign.

5. 5. Writing and deaf communication.

Unlike lip reading, the written systems are directly perceptive for the deaf. The comprehension of what is written can be clouded only by a lack in the knowledge of the language or a faulty calligraphy, because the written text is expressed in a visual way, which is a sense that deaf people normally have. The guessing used in the lip reading activity is almost ineffective in this case. Whoever sees a written text sees the writer's expression; and even more, if something is not clear for anyone it is independent of the deafness disability. This lack of intelligibility depends on the light illumination of the text, the type of writing, the orthographic mistakes, or the knowledge of the reader (Samuels & Eisenberg, 1981), but always regardless of any hearing disability.

Writing is usually a transcription, more or less accurate, of a spoken language. In some cases without any direct link with the pronunciation of the language, such as Chinese, Japanese for its Canji system, the Semitic writing systems and other syllabic systems. Chinese and the Japanese Canji attribute a single character to each idea, without any connection with the pronunciation of the word. These systems are called ideographic and intend to be a representation of the objects to transmit. The Semitic languages change the vowels in the pronunciation, from one language to the other, and rarely their consonants. The origin of the writing Semitic systems were ideographic but were simplified to the consonant sounds, omitting the vowels, which allowed to communicate by writing between people who could not understand each other due to their speaking different languages. The better known example is the word *peace*, usual greeting among the Semitic cultures, which can be pronounced *shalom* in Hebrew, *salam* in Arabic, or *slema* in Kabyle.

Alphabetical languages attempt to transcribe the phonemes of the language into symbols, but except from the International Phonetic Alphabet, this attempt never succeeds completely. This failure is due to the evolution of the languages, which present changes that the pre-existing texts do not register. Another reason for the incongruity of the alphabetical writing with the oral language is the origin itself of the writing system. Latin alphabet was adopted by Romans from the Etruscan writing, and it spread to many other languages. The Etruscan alphabet itself was borrowed to the Greek alphabet, which was already adapted from the old Semitic consonantal alphabet. The names of the Greek letters are just the names of the letters in the Semitic writing system adapted to the Hellenistic pronunciation. It is for that reason that the Semitic *aleph* became *alpha*, the *beit* became *beta*, the *guimel gama* and so on (Calvet, 1996). The Greek took the consonant *aleph*, stripped of its glottal closure, to make it represent the sound /a/, and created the other vowels with the letters *iota*, *epsilon*, *eta*, *omicron*, *ipsilon* and *omega* corresponding to their vowels, short or long. With all this borrowings and legacies from former pronunciations, the alphabetical writings can hardly give a faithful copy of the contemporary sounds of a language.

Writing systems are therefore, for usual readers, a group of signs that recall in a whole a word of the spoken language. They can be completely independent of the pronunciation as in Chinese or Japanese, or simply with a poor relation to the sounds of a word. As a consequence, skilled readers do not stop to verify all the letters of each word, but make a direct relation from the few clues they see to infer the idea that fits to the context, even regardless of the pronunciation (Maxwell, 1986). An actual example of this is the Breton word for *today*, which while is written *hiziw* is pronounced /hiriw/, /hirjo/ or /hiri/ depending on the different dialects (Morvannou, 1998). This contradicts Azbel's (2004, p. 3) when she says "When reading, we recode each word from its letters

(orthography) into the smallest units of sound whose differences are significant for language (phonemes).” but this author does not extend the reading activity to usual and fluent readers, they are only American, and she does not take any interest in Chinese or other possible languages. Especially in the ideographic writing systems, the relation to the phonological memory is inexistent per se. Azbel (2004) admits in page 5 that the deaf may associate the written words with their corresponding signs. Anyhow she insists in his conclusion, on giving an auditory cortex function to the act of reading, even if profound deaf have never heard to use that cortex. She explains then that this cortex, devoid of its normal inputs, would process visual stimuli.

The normal conclusion of the thesis is that the deaf uses visual stimuli to read, without any auditory base, and therefore, written words, independently of the type of writing, ideographic or alphabetical, are recognised as directly linked to the meaning. This means that Chinese deaf would learn to read in an easier way than deaf from countries with alphabetical writings because the visual space occupied by a character is directly recognisable as an idea, in the case of the deaf, as a sign. It is for this reason that deaf used to read, when they are reading “aloud” make the signs in the Sign language, as hearing people would pronounce the words when reading aloud.

The important point is that to use a writing system allow deaf people and hearing people to communicate in an easier way than using mimics when the deaf do not know how to speak and read lips and the hearing person does not know the sign language. This is an effective communication channel between the two communities, even if it is much harder for the deaf to learn to read and to write alphabetical writing systems. Nevertheless, the direct link between the written sign and the idea in the brain of the reader, may be developed faster in the case of the deaf, because there is not an intermediate path of

translating what is read into sounds. The only question that could remain is how to teach deaf efficiently to read in alphabetical languages, which is the case of Spanish and English, and how to develop that relation of the printed sign with the signs in the brain of the reader.

6. PEDAGOGICAL APPLICATIONS

For hearing people as for the deaf, teaching is an action in which communication takes the major part. Then, this chapter will be focused on the pedagogical two systems used to communicate, for the deaf and for the hearing, and how to teach the hearing language, as well as the benefits that could exist for the deaf learning the hearing way of transmitting the messages.

6.1. Which language to use to teach to deaf people?

Not only the natural language for the deaf is the Sign Language (S. L) (de L'Épée, 1776), and it is this language through which the deaf student will create all emotional and intellectual initial ideas (Vygotsky, 1934), but to teach something, a code must be shared by the teacher and the student to convey the information. Usually to determine which code to use to teach is not a problem in the hearing society because teachers and students already speak the same language. Nevertheless, when teaching to deaf students, it is important to take into account that, all across their lives, in contact with other deaf, S. L. becomes complete and natural. Besides been S. L. the original language, it is fully perceived by them, without any mysterious imperceptible clues to be understood. Therefore, the information conveyed to teach any matter would require to be in this code, especially when it is about a spoken language, because using this language a channel impossible to perceive, it can become an abstruse reality (de L'Épée, 1776). Every discussion about whether the S. L. is sufficient or not to express some abstractions is useless, because the same issue happens to teach those abstractions to hearing people in initial education (Sandler, 2001).

What takes precedence is the fact that this is not only their natural language but the perceived channel to communicate with them.

To teach to deaf something more complex, as can be a spoken language, it is necessary to rely on their natural linguistic code, because it will simplify most of the explanations about the elements that are, by definition, new for them. Even more, to introduce that mysterious, and often considered hostile language, to use their own natural communication system will help to leave aside some of the arguments deaf may have to refuse the hearing society. It is important to set clearly that, all across the process of teaching a spoken language to deaf, it is necessary to continuously promote the motivation. And, as for every propaganda, to do it in the more direct and familiar code of the recipient, the better it is. It is important to keep in mind the famous quote of Nelson Mandela: *If you talk to a man in a language he understands, that goes to his head. If you talk to him in his own language, it goes to his heart.* To make deaf people accept a spoken language, it is always better to speak to their hearts, in this case, to sign it to their hearts.

For any subject, to try to teach it without a channel to communicate with the learner seems an impossible mission. A spoken language, that is not even perceived, simply does not exist for the deaf. They may be aware of something used by hearing people to communicate, but without sensations to determine what that can be. Their idea of the language is just mysterious and illusive and therefore, with an evasive reality. To use the S. L. to explain to deaf abstractions such as spoken languages seems compulsory for anyone who wishes to have access to their mind (de L'Épée, 1776).

6.2. Why to teach deaf people a spoken language?

Deaf are immersed in a hearing society, where all the signs use the sound, or a representation of the sound, to be understood. Despite the number of deaf people living in the majority of the societies, there are few cases of hearing communities knowing the S. L. of their deaf members, such as the Kata Kolok (de Vos, 1983) in Indonesia, where people communicate indifferently using S. L. or the spoken language. Normally, the hearing community does not know the natural language of their local deaf and a percentage of the deaf does not know the local spoken language. If five percent of the world population are deaf (WHO, 2012) this implies that ninety five percent belongs to the hearing community, and therefore the society as a whole is structured on hearing parameters. This means that culture and literacy development of the deaf people need mainly to be in the local spoken language, or in writing support, which reflects a spoken language (Evans, 1998). Even more, the easier way, for the deaf community, to communicate with the rest of the population, is using the writing system, because it does not require the enormous efforts that could need to lip read and even just to speak. This communication may be by writing and reading the messages or just by using the dactylological alphabet, if the hearing interlocutor knows it.

It has been stated before that the deaf community forms a social group, which is different from the hearing one. The characteristics that allow a social group to be different from another one usually create conflicts and rejection between them. The best way to diminish these disturbances, without going to an integration that generates malign effects, is to have means of communication in common that would soften the differences of the cultures helping to know each other. In order to fill the breach between the two cultures, it

is evident that the minority needs to learn the language of the majority, and in this way, to avoid being excluded from the cultural and the economical stream (Kolb, 2013). Without the majority's language, deaf are confined to their own social group, which, being a not dominant minority, has no access to all the information which forms and develop the mind (Perez de Arado, 2011).

6.3. How spoken languages are perceived by deaf.

Above, point 4.3.1 shows how the hearing society rejects, often expressly, the deaf people, and how that rejection forms strong social groups of deaf. If the society forms sub groups, it is always based on a definition of characteristics required to belong to one or the other group, in this case the hearing or not hearing capacity. Deaf people recognize they are different from the hearing society as well as they recognize deaf as being different. This difference is based on the capacity to hear. Most of the society can hear and many of its codes and rules are aural, while deaf groups simply have rules based on other senses but hearing. History shows how the hearing society as a whole, starting with the family group and including the State organization, sets apart the deaf community (de L'Épée, 1776). Even nowadays, this segregation is long-lasting, with effects such as maltreatment in many of its aspects. These can be emotional and physical abuse, including sexual abuse, and the most common case, neglect (Humphries, 2016). All these abuses generate emotional and even cognitive harm, not leaving aside, mainly, a rejection of the society that allows them, with persistent grudge in the deaf minds. A very clear example can be found in the film *Children of a Lesser God* (Sugarman, 1986), where it is evident that the refusal of a deaf towards the hearing culture as a whole starts from the early childhood. Abuses towards deaf

are permanent and in all countries (Humphries, 2016), and the hearing society is constructed on hearing basis, producing a world that deaf feel as oppressive (Silver, 1999) when not hostile.

The summit of the hearing society is its languages, which convey all the culture and statements. Same languages that are not perceived by the deaf, except as the angry faces when the hearing shout at them. History presents few cases of deaf who have overcome the stream of rejection of the hearing world, and with it, its language. These exceptional examples are fully described by the authors who taught to speak to deaf, from many centuries ago such as de l'Épée in 1776, to nowadays Humphries. Less cases are testified by the deaf themselves as Kolb does, and always showing remnants of the old grudge. The major expressions of the rejection of the hearing society and its languages is the novel *Eyeth: A novel for the deaf* (Young, 2013) where not only a complete planet is prohibited to hearing people, but even more, it is in war against the other “hearing” planets.

6.4. Pedagogical insights.

Based on what was explained in point 4.3.1, it becomes evident that deaf need to know the language of the hearing majority to avoid problems in their lives, and to participate in the mayor stream of the culture with all the opportunities and services it can offer (Silver, 1999). The real question is to determine what it means to know a language:

- Must deaf learn the lip reading techniques with its years of training to obtain debatable results?

- Must they learn to speak, if possible from the early years, to form the organs of the vocal system to produce a voice that not be awkward to the ear of those who can listen?
- Must they learn just to read, and write, to be able to communicate in a perceptible way for the two parts in a conversation?

What is sure is that the more each one knows each other, the best they will accept their differences, and, as a consequence, the rejection of the hearing world diminishes with the increase of the knowledge of the language used by the social environment.

Teachers must fight against all the prejudices, in the hearing students as well as in the deaf ones, in order to make them to know each other, and finally, to improve the educational process. This struggle against sectarianism and mutual rejection must be based on the fact that deaf do not feel as disabled, and that with little adaptations, they really are not. When hearing will understand that deaf are their equals, just using other means of communication, a bridge can appear between these two conceptions of the world, leaving away all the prejudices, and with them, all the bitterness that hinders learning. The first step to weaken the deaf repulsion towards the spoken languages is to use signs in class, this means to turn sounds into something not compulsory for the comprehension of the class. The second step would be to explain how and why to master a spoken language is useful, explaining that it is as complete as the signed one, when it is the case, and that the written system allows to transcribe every message one can need. After these two first steps, the other advantages of spoken languages, such as education, information and possibilities of communication may be used to reinforce that motivation that can lack so often in these classes.

6.5. To teach deaf to speak or just to write and read spoken languages.

To teach deaf an aural language to be used in every day communication implies, in a broad sense, to teach them lip-reading and to speak, among the reading and the writing skills. To teach lip-reading, it is necessary to make them able to understand what is said to them, and to speak means to know how to modulate the position of the organs used to produce the different phonemes of the language, and afterwards, the words composed of those phonemes to respond to what has been told to them. It is not possible to learn to lip read without knowing deeply the language to lip read, and this is a task of hard work, that could take eighteen years (Kolb, 2013). To learn to speak is considered faster, conditioned to know the words, grammar and syntax of the language to be learned. That is to say, that for the deaf, a spoken language is not perceived, and therefore, they lack the imitation reflex, from the earlier age, which helps hearing children to speak (Locke, 1690). For those reasons, all of those techniques cannot be taken on without using the S. L. which is understood by the learner, and to transmit a meaning to the studied signifiers (de L'Épée, 1776; Nussbaum, 2012).

Teaching a language to deaf needs, then, to take several aspects that can be used at the same time. The written system is directly perceived by them, and may be taken as a base to start. To give a meaning to some draws, as the letters are, is not of difficult explanation, besides the grammar, and syntax differences between the written code and the S.L. that can be explained using the S.L. itself (Alfonso de Barahona, 2009). After this, if the teacher pronounces always the word that is written, will introduce, although inconspicuously, some notions of lip-reading, which can evolve into a deeper skill later when possible (Campbell, 1978). Even in the cases of deaf strongly refusing the hearing

culture, the comprehension of what is said to them by using the lip-reading is generally desired albeit unfinished or too long. In fact, the written system appears always as perceptible for deaf, and when it is not too distant of the spoken system, it is a way to have an idea of the pronunciation (Kolb, 2013).

In classes where hearing and deaf students will be mixed, usually with a great majority of hearing for few cases, if any, of deaf students, the use of S.L. simultaneously with using spoken words is necessary, and in this case, the spoken language needs to be the written, just to be perceived by the deaf component of the class. When using S.L. simultaneously with spoken words, the S.L. may suffer modifications because the syntax and the grammar of these two languages are different, but instead of making a problem, this situation can be used to explain those differences and the reason of their existence. This will allow teachers to make understandable for the deaf the structure of the spoken language, and for the hearing students to widen their metalinguistic skills, making their spoken language comparable with another communication system. As always, when trying to teach something to deaf people, the means to explain must be visual, and therefore the written system will be the first tool to make the aural world accessible to the complete community of the class, deaf and hearing together.

Teachers must, whenever it is available, ask the help of speech-language pathologists, to stimulate the speaking possibilities of their students. At the same time, teachers need to delve into all documentation available to increase their techniques to teach deaf to speak and lip-reading, without displeasing the deaf pride and adapting their techniques to the changes that their pupils will suffer by the age or psychological evolution. The collaboration with the speech-language therapists will always be for the deaf sake, improving not only their participation in the surrounding culture, but their self-esteem

(Nussbaum, 2012). These therapists can help to maximise the profit of the hearing aids, such as cochlear implant, to increase their listening, develop a hearing memory in the student, and the use of their organs appropriate to produce speech.

6.5. How to teach deaf to write and read spoken languages.

To teach deaf how to write and read is often a language introduction, because their language is the S.L. which has not only its own grammar, vocabulary, and syntax but its own media to be perceived; therefore, the language used to write and read is completely a different and new language for them (MEN, 2006). To lead deaf people to be able to read and write means to allow them to reach literacy levels, and with them, linguistic experiences with the larger society without perceptual distortions (Maxwell, 1986).

The process to teach to write and read starts always by learning to draw the letters of the alphabet and, for the deaf, to give them a sign to identify them, which is called the fingerspelling. It is a representation in S.L. of the letters of the alphabet, that allow deaf to have the “name” (sign) of each letter in a familiar system. It avoids to add different levels of abstraction for each written word, because they do not pass from the pictorial letter to an unknown signifier, and then, to amalgamate those unknown signifiers into words to attribute a sign. With a sign for each letter it will be the signifier of the letter which will roam the path to the other operations, blending them into words and so to a sign, in a familiar base, the signs. It is important to take into account that whereas the S.L. uses a sign as a signifier for a signified, “manual alphabets can exploit only the visual characteristics of written symbols” (Padden, 2003, p. 11). A sign furnishes the complete meaning, while the fingerspelling is absolutely sequential and is based in the spoken language, which is not

founded in deaf culture (Padden, 2003); therefore, the teacher will create, by training, the connection between those visual letters and the signified to convert them into a sign.

To start teaching the alphabet to a deaf person is usually to start teaching the spoken language, because even with the hearing aids, the deaf suffer of a lack of the hearing memory required to remember the sound of a word, and in consequence to attribute to it a signified to build it into a linguistic sign. When the deaf has learned to speak, because deafness affected him or her once the language was acquired, or via the hearing aids, to learn to write and read is not necessarily to learn the spoken language, but if the person is illiterate, it is possible that many words may lack, except for some groups for whom the traditional language is richer than the used by the educated part of the population. An example of this last situation can be observed with the “paisa” farmer population, in Colombia, where the country illiterate people use an extended vocabulary with precise and specialized Spanish words fallen into disuse in those who have gone to the regular school. Anyhow, the best way to teach the alphabet is to start with letters forming simple and short words in order to give a meaning in S.L. to those words (de l’Épée, 1776). For instance, it is good to start teaching the word *mom* just after teaching the letters *m* and *o*. Another important clue to teach the alphabet are the borrowings in the S.L. of the written spoken language, in manual alphabet, for some signs, when signs use the fingerspelling of the first letter of the spoken word to outline the hand shape of the sign. An example is, in the Colombian S.L., the word *water* that put the hand in the shape *a*, of *agua* (*water* in English), to the chin.

Besides the fact that the fingerspelling is perfectly perceptible by the deaf, it has characteristics such as:

- To be faster when signing than to write the words on the board.

- Gives a way to introduce new words when they do not exist in the S.L.
- It is easier to learn for the hearing people, and even if it is uncomfortable, in comparison with the S.L., it allows the communication between these two worlds, the hearing and the deaf.
- New words, not existing in S.L. or whose sign in S.L. is unknown by the issuer of the message, can be communicated.
- Facilitates the reading skills, creating a direct image from the manual alphabet to the meaning of the word.

(Baker, 2010)

In the same way that learning a new language increases the knowledge of the mother language, for the deaf, to learn to read, means to find new words, new structures of the speech, and therefore, to look for new signs in the S.L. In a word, reading always improves the literacy of the reader. Nevertheless, a point that does not receive the deserved merit is the writing skills. The simple exercise of performing the letters first, the words after, to finish with the sentences in an aesthetic calligraphy, helps not only the memorization of the words, but the comprehension for the possible reader. The calligraphy is a way to internalize the word using perfect sensible means.

Once the deaf has the mastery of the alphabetical letters, teacher can start to go deeper in the knowledge of the spoken language with other readings. The approach needs to take into account that the students will not perceive the language, which by definition is oral. Hence, the basic perception will be reduced to the written form, and lip-reading, as well as the production of sounds, fall into adjoining realms, which will belong to the speech therapists. This does not prevent pronouncing correctly the written words and sentences while teaching, besides the use of S.L. and writing, to allow the lip-reading skills to

develop in the students. In the same way, whenever a pupil will ask to learn to pronounce a word, the teacher must be able to explain correctly the steps to do so. Methodology is then circumscribed, principally, to the use of pictures and written text, without leaving aside the presence of the oral forms, applying the total communication approach, when it is not a source of conflict with the deaf pride (Birinci, 2014). In the beginnings of reading, the Communicative Language Teaching method is very opportune, because it allows deaf to talk with other people in the electronic devices such as the web or mobile phones using text. At this step a lexical approach would furnish learners with those chunks of speech that allows to develop conversations to which deaf are not used (Harmer, 2007) to have with hearing people. Personal experience of the author of this monograph showed that the reactions of the deaf to be able to talk, using written messages and thanks to those chunks, with other distant people are always very satisfactory, for their interlocutor, for the deaf and for the teacher. To be able to communicate with many other people, for deaf people, is always a source of motivation that fosters their learning strength.

If to be able to have a conversation in a new language is always a rewarding scope, it must not be the final one. One of the foundations in teaching deaf people must be that they are normally intelligent (de l'Épée, 1776; Birinci, 2014), therefore, they can satisfy the real literacy levels, which needs the capacity to read more complicated texts than just those chunks used in common talks. A normal procedure to lead the deaf learner to get used to longer texts and with a more varied words is to use illustrated texts, such as the graphic novels and cartoons. The advantage of cartoons is that they are usually very short, sparing big efforts of perseverance to the beginners in the discipline of reading. The next step, to start reading texts with more significance and size, can be based on graphic novels, where the meaning of the writing text is completed, when not prompted, by the graphic picture.

The graphic novel must have a broad spectrum of vocabulary and expressions, as well as the register which may be formal or familiar, depending of the script. Pictures need to be rich in details to add aspects to the environment in which the text develops. This kind of reading stories will use the task based techniques, through which instead of teaching the language, students will read a story, and eventually the language will be needed to understand the scenario. A good example of this kind of graphic novels is the Franco Belgian school, where pictures, register, and scenarios are the work of different artists and vary from very expressive to historical accurate, showing a redundancy of the story between the picture and the text, and they would induce to other discussions besides the story itself (Perfetti, 2000). One of the more outstanding examples of the redundancy between pictures and words is the series *Les passagers du vent* (the passengers of the wind) (Bourgeon, 1979). Another great example is the series *Le mercenaire* (Segrelles, 1981) where the hyperrealistic technique narrate in its picture the same story than that written in words, with many more details. This kind of graphic novels draw the attention of the public because they have a proper message in the pictures, but, for a teaching purpose, if the picture has a vast content, it is not enough to understand the story, and reading becomes necessary to the full satisfaction of the reader.

Once the interest in reading has been awoken, using the techniques above described, and the introduction to the language that they accomplish, the reading by itself may be started with short texts with beautiful descriptions which will take the learner to get familiarised with simple readings voided of any visual picture. These descriptions need, of course, to be as descriptive as possible to elicit the visual images from the reader memory. Besides these descriptive excerpts of visual images, the texts used to train to read without any images need to have descriptions of the context. Space and situational context need to

be fully described for the deaf, as Young Kesley (2013) does in the first chapters of his novel. A kind of image free reading is elicited by the discussions by electronic messengers, at the same time that writing skills are required too to reply to the messages.

The influence of phonology in the deaf students is a matter of discussion, but using a phonological alphabet to write and read, will produce a phonological basis on which the whole written system is set. The deafness degree, and the age to which that deafness has been acquired, if the language was already started to be formed in the brain or not, determine how deep the phonological influence will act in learning to read and to write. This matter is a discussion among the specialists of the question (Perfetti, 2000), even in born deaf children, who have refused every kind of hearing aid, including the cochlear implant, once they are optimum readers, reproduce the sign language symbols when reading. This last observation leads to another question, about the grammar and the syntax used for those “reading aloud” moments, because the grammar and syntax of the two systems, spoken and signal, are different from each other.

6.6. Concepts may differ in spoken and in sign languages.

Besides the few borrowings from the spoken language to the signs language, such as the initial letter of a word used to shape the fingers to produce the sign, many other differences appear in grammar and syntax between these two systems. The biggest difference is the importance of the description of the space where the characters in discussion must be situated. Instead of having object pronouns, in the Colombian S.L., the signer determines particular different spaces for the subject and the object, to which he or she will point at the signs when referring to them in a sentence.

Another prominent difference in the C.S.L. with the spoken Spanish is the fact that the gender of nouns are marked only when they are important in the discussion. Otherwise, the sign is neuter. When it is considered important, as it could be when speaking about two children, one male and the other female, they are located in a geographic place at the introduction to the context, marking the gender of the child in that place by an *o* or an *a*, according to the gender, male or female. In the course of the discussion, the deaf will keep in mind the gender pinpointed in each sector.

The sociolinguistic differences intervene in the relationship between the hearing and the deaf people because there are many basic values that do not coincide. The most important is that the deaf touch other person for communicational purposes without necessary sentimental ones. For instance, to make a toast when drinking deaf do not hit the glasses to make a sound, which is meaningless for them, but they touch the fingers that hold the glasses (Moore, 2016). Another aspect is that many factors of timidity or shyness, mainly when related to sexuality, are simple normal things of the life for the deaf people and therefore they can talk about them without the required intimacy among the hearing people, even when they are not from the same gender.

7. CONCLUSIONS

To think to communicate with deaf imply to take into account several issues, issues that become bigger if it is intended to teach them spoken languages. Usual methods to teach languages are based on the hearing sense, and by consequence, they are just inappropriate for this task. The first obstacle a hearing person finds to communicate with deaf is the use of a common code, which, by definition, cannot be aural. Finger spelling would be a practical solution, because it is easy to learn, just the few letters of the alphabet, and then, once some practice has been acquired, a conversation is possible. But this solution has a logical flaw; to teach the dactylological alphabet to a deaf, it is necessary to accept two previous assumptions: the deaf has been taught that alphabet, and even more, he already knows the orthography of the aural language that the finger spelling represents into visual signs. Here the question goes back to its basic postulate which is that teachers must know the S.L. to communicate with deaf students, from the beginning of the school time, in order to be able to teach the spoken language and its orthography represented by the hand alphabet. Finger spelling is, therefore, a good method to communicate with deaf people if they are well versed in the used spoken language, and the hearing interlocutor knowledgeable about the dactylological signs.

The first corollary of this work is, then, that both, deaf and hearing, must make efforts to communicate with each other. The second one is that learning the spoken language is essential for deaf to get the literacy to be able to live in this aural society. Despite the fact that Sign Languages are complete languages, they are used by particular social groups, and by consequence, with their own ideas inexistent in the spoken language, and without ideas that are exclusive to the aural speech. Usually, teachers make a first presentation of these

ideas inexistent in the S. L. using the dactylological alphabet, which is a way to learn a new word and to know how to spell it. Of course, as for every language, these words just spelled, quickly generate their own sign, to eliminate the difficulties of every borrowing from another language. This generation of *signes méthodiques*, as de L'Épée (1776) called them, soon lose the link with the orthography, to become simply natural signs.

Experience teaching deaf proves that if they learn to lip read, or even to speak, it is not by the teachers' insistence, because that would produce a pervasive reject. Teachers need to pronounce the words to help with the lip reading skills, but keeping in mind that the grammar and syntax will differ with their signing discourse. Nevertheless, when signing while speaking, grammar and syntax of the spoken language could become apparent for the students.

Another point to elucidate about the use of S.L. is that they have a poetic function in their language. If it is not evident from the beginning of the study of S.L., and, it is because most of the deaf do not have those sensitivities for the lack of instruction, but this function is used when they are scholars and akin with them. An outstanding example is Emmanuelle Laborit, born profound deaf, living the usual tragedies deaf have to endure during her youth; she is an actress who won the Moliere reward in 1993, for her work in S.L. Her poems show the pure reality of the poetic function when spectators do not understand the French S. L. What is perceived is the quintessence of poetry, free of sounds and words.

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